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ORIGINAL COMMUNICATIONS.

THE MANAGEMENT OF DISTURBED MENTAL CASES PRIOR TO COMMITMENT.[1]

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We do not have to look back many generations to find that the insane were believed to be possessed of devils, that their souls were believed to have been removed by God, and, as a result, disturbed mental patients were whipped, tortured, chained in cellars, jails, or dungeons, and occasionally some were burned. Advancing civilization and progressing scientific knowledge recognized the inhumanity of such procedures and led to the inception of forms of treatment based upon the fact that insanity is a disease, and not a divine curse. Chains and whipping posts were abandoned, crude asylums were erected, and crude attendance given. By a gradual process of evolution, the care of the insane has passed from a mere jail or other purely custodial institution to well-equipped hospitals with well-lighted, well-ventilated, cheerful rooms, corridors and sun parlors, and supplemented by intelligent, trained, expert medical care and skilful nursing.

On being called to the home of a patient suffering from insanity, about the first problem confronting the physician is whether or not the patient should be admitted to a hospital. Often this question is not readily answered, and the reply must be greatly influenced by the character of mental disease encountered. If the patient is reasonably quiet, coöperative, and his actions not dominated by delusions and hallucinations, it is often possible and practicable to care for him at home. If the patient is excited and his actions influenced or controlled by his delusions and hallucinations, and especially if exhaustion be impending or fully evident, he must be removed to an institution.

The chief topic upon which I wish to dwell this evening is the management of a disturbed patient during the time which intervenes between the onset of the excitement and the time the patient is taken to a hospital, whether it be one day or ten. There are three important questions which confront the family physician when called to see a case of the type permitting treatment at home: they are (1) the administration of narcotics; (2) the use of hydrotherapy; (3) the frequency and kind of food the patient should receive.

The patient should occupy a room as far removed from neighbors and members of the family as possible—preferably near a bathroom—and should be kept under constant, most vigilant supervision, preferably by experienced nurses. In every instance, precautions should be taken to remove from the patient's room all sharp instruments, drugs, and anything with which he might harm himself or others. Provision should be made by which windows cannot be raised at the bottom or lowered at the top more than six or eight inches.

Rest in bed is a valuable factor in the treatment, and to attain this end it is usually

[1]Read at the Psychiatric Society of Philadelphia, November 14, 1913.

advisable to resort to sedatives or narcotics. One of the best I believe to be hyoscine hydrobromate in doses of from 1/100 to 1/50 of a grain hypodermically; in extreme cases evincing intense motor excitement, morphine sulphate in doses of from 1/6 to ¼ of a grain may be added. This usually quiets the patient until preparations can be made for a pack, of which I shall speak later. My sympathy is extended to the family physician when I see admitted to an institution a patient with parched lips, a dry, coated tongue, a hot, dry skin, and a rectum full of impacted feces, for I know the medical attendant has been hounded by the family to give large and repeated doses of powerful hypnotics, often against his better judgment. However, it is not an uncommon institutional experience to encounter patients admitted manifesting the phenomena mentioned; consequently, days, or even weeks, may be necessary to reëstablish a secretory state approximating the normal. Only a few months ago a patient was admitted to the Pennsylvania Hospital for the Insane who was for twenty-four hours in a stupor due to repeated large doses of veronal. The patient's secretions were completely suppressed, and there had been superimposed on a severe mental derangement the deleterious effects of a drug toxemia. The bromides, chloral, trional, and veronal are perhaps the drugs most frequently abused. However, each has its place when judiciously administered in properly selected cases.

Hydrotherapy, to be sure, has its limitations in the average private home. However, there are few homes that cannot provide the doctor with sheets and blankets. The wet pack is practical and effectual. In the majority of cases of excitement I believe the hot wet pack has a greater sedative effect than the cold pack, although I offer no objections to the use of the latter. In applying the pack, provided there are no contraindications, a dry blanket is spread upon the bed and the patient placed thereon; a sheet wrung out of hot water so it does not drip is quickly wrapped around one leg extending to the pelvis, a second similarly prepared sheet encloses the other leg, and a third sheet surrounds the trunk; a blanket is wrapped snugly about, and reënforced by a second and third if necessary. The chief advantage of this method is that it permits quick access to the rectum in case an enema is deemed necessary or the rectal temperature is taken; by simply opening the blanket the requisite manipulations may be made without unduly exposing the patient. An ice-cap, or preferably a Turkish towel dipped in ice water and wrung out, should be applied to the patient's head and frequently changed. The patient is usually glad to take several glasses of cold water, which is strongly advised. The pack affords sufficient restraint until the sedative effect is manifest, and I have repeatedly seen patients go to sleep during its use. The pulse and temperature should be carefully observed, and if no untoward symptoms develop the patient may remain in a pack from one to six hours. When removed care should be taken to wrap the patient in warm, dry blankets; exposure, drafts, or rapid cooling should be avoided. The pack may be repeated as often as necessary, and there is no objection to the occasional additional employment of some sleep-producing agent.

The majority of these cases take their nourishment fairly well, and it is of the utmost importance that a large quantity of easily digested food be administered. Milk, raw eggs, animal broths, and plenty of water, besides the regular meals, are strongly recommended. The mouth and teeth should be kept clean, and the organs of elimination kept active by laxatives and an occasional enema. Stimulants and tonics are advised if indicated. Medicines, however, should never be given in food, as it may intensify an already established delusion or create an idea in the patient's mind that he is being poisoned.

If the patient refuses to eat, a reasonable amount of time should be allowed before resorting to artificial feeding; the hope is

that the cravings of hunger may induce him to eat. It must, however, be borne in mind that motor restlessness, followed by a heavy breath, a dry, coated tongue, and hot skin, are signals of approaching exhaustion. In this connection I might mention that frequently when these patients are awakening from sleep they will take several glasses of nourishment, while at all other times they refuse it.

Artificial feeding should have intelligent supervision, and should always be given by the doctor. It is best accomplished by the passage of a nasal tube. The patient may be either seated in a chair or reclining in bed. Sufficient help should be present to prevent undue struggling. The tube should be passed slowly, and the patient told to swallow to avoid entering the trachea. A convenient time to feed a patient artificially is while in a pack. Care should be taken to offer these patients food from time to time in hopes that they will take it; frequently they learn to depend on tube feeding. As a rule, two forced feedings a day are adequate.

The usual mixtures for feeding include milk, raw eggs, concentrated beef juices, animal broths, fruit juices, and plenty of water. In addition there may be added medicines, particularly laxatives and cathartics.

THE TREATMENT OF THE PNEUMONIAS AT THE PHILADELPHIA HOSPITAL IN THE SEASON 1912-1913.[1]

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The kindness of the various chiefs and the assistance of the house officers made possible the systematic following up of the 140 odd cases of pneumonia which entered the medical service from mid-October, 1912, to June, 1913. A consideration of the treatment of this number of cases must offer some points of interest, particularly since several different methods or details of treatment are regularly seen.

I think you will all agree with me that it is useless to compare methods of treatment, in pneumonia at any rate, in such terms as

111 cases were treated by exposure to open air with 45 deaths.
33 cases were treated indoors with 21 deaths.
38 cases were treated rigorously with digitalis with 16 deaths.
19 were treated consistently with quinine and urea with 8 deaths.
22 were treated with salt solution by vein, by mouth, by bowel, with 14 deaths.
13 were treated expectantly with one death.

"Circumstances alter cases," and all that can sensibly be done with non-specific methods of treatment is to study their effects upon particular conditions. I cannot take up in order all the details of pneumonia's therapy as seen during the season in the Philadelphia Hospital; time will not allow it. It will be better to concentrate on a few.

Although many different drugs are given, the general treatment is the open-air method, and the bridge wards give an excellent opportunity for its application. Almost all adult cases are brought at once to these wards, which hang suspended between the main buildings, and which, with their glass sides swung open, give an unlimited exposure to light and air. There is unfortunately no arrangement for any hydrotherapeutic treatment, the carrying out of which is of course hardly practicable in an exposed quarter. No matter what the special treatment ordered, the patient in the bridge wards receives fresh outside air, plenty of water by mouth, and a liquid diet.

There are many more cases of pneumonia than my figures take count of; many enter and die over night, others are distributed in other departments and not easily followed. I thought it better, however, to deal only with cases regularly seen and in which

[1]Read before the Section of Medicine of the College of Physicians of Philadelphia.

details of treatment could be personally observed and studied.

Of 111 cases given the open-air treatment, 45 died, an appalling mortality. Fresh, cold air did not save the moribund, the alcoholic, the aged, or the case infected with a virulent pneumococcus. It had, however, some very beneficial effects.

Fever seemed to be influenced: after twenty-four hours in the open, a slight drop in the temperature was usual. This was more apparent when the charts of 15 indoor cases were used for comparison; the drop is from one to two degrees, and in the absence of complications the high level of the first day is rarely reached again. The average temperature of the first two days of the exposed series seemed to be 102°; the average of the indoor cases is practically the same. Several asthenic cases without fever, amongst the smaller group of cases, make the figures of comparison decidedly deceptive, the frank pneumonias of the indoor group having a distinctly higher average temperature.

Respiratory distress seemed to be relieved. The average respiratory rate of the open-air cases was 35.4 per minute; that of the indoor cases was 46.7.

Early cyanosis appears less often; a pallid duskiness was a feature of all indoor cases, while in but 11 cases of 90 white adults consecutively observed in the open-air group was it at all marked. The late cyanosis of vasomotor paresis and heart failure developed of course in the fatal cases.

Diuresis seemed to be produced, though it is to be remembered that large quantities of water are given regularly; 60 to 90 ounces of urine per day are recorded frequently during a spell of cold weather; not one of the indoor cases approached these figures.

Beneficial effects upon pulse-rate and blood-pressure are not easily demonstrated; the average "out-in-air" pulse-rate seemed to be 111, and showed but little variation till the crisis; the average indoor rate was higher at 120. The large amount of poor material in the indoor series must be remembered, however, in any such comparison.

There were too few regular blood-pressure records in the indoor series to give figures for any consideration or comparison. A good level of pressure seemed to be maintained in the cases of the outdoor lot who recovered; in the fatal cases, as is usual, the blood-pressure steadily fell.

Delirium seemed to be a less evident feature in the cases in the open; 50 per cent of the indoor cases were delirious from the start to finish of their illness; in only 29½ per cent of the others did delirium persist after forty-eight hours in the open; post-critical delirium, however, and late delirium developing with fresh infection were recorded.

Effects upon crisis cannot be positively determined; this is to be regretted, but the majority of patients showing termination of their illness by crisis had worn through several days of illness in their homes anywhere from four to sixteen days previous to admission. The history of the first 30 cases, for instance, reads: "Sudden onset with chill, pain in side, for several days previous to admission." In two young adult cases developing pneumonia in the hospital and submitted at once to the open-air treatment, crisis occurred in one on the sixth day, in the other on the seventh. Exactly 48 of the 111 outdoor cases terminated by crisis. It would not seem that a sharp fall of temperature is brought about in any greater number or percentage of cases by exposure to the air.

The final clearing of the affected lung was determined in 50 cases; excluding three cases of persisting delayed resolution in which seventy, twenty-nine, and twenty-six days respectively were required for the pneumonia signs to clear away, it was found that the last vestige of râles and roughened respiration disappeared after, on an average, 9.5 days. The rapidity with which the tubular quality of the respiration may vanish makes its determination a difficult question. It was noted to disappear

over night. The greater number of cases in the open lost this distinctive feature of the physical signs in 3.5 to 4 days.

The six vigorous indoor examples of crisis showed lungs completely clear in 6.5 days.

Exposure to the open air did not forestall complications.

There occurred 2 empyemas; 5 serous pleural effusions; 6 instances of delayed resolution; 9 instances in which pneumonia traveled from lobe to lobe; 1 instance of relapse; 5 instances of late developing delirium.

Other complications occurred. They have not the same bearing upon or relation to the open-air treatment as the pulmonary and cerebral ones. One point seems deserving of mention: there were but six cases of extreme abdominal distention in the series.

As to whether convalescence is hurried, I would find it hard to say. The Blockley cases are characteristically a poor lot, and many of the alcoholics improve but slowly even outside.

Under the protection of the open-air method several accessory lines of treatment are carried out. The only ones I can consider this evening are the treatment by digitalis, the treatment with quinine and urea, the treatment by injection of normal salt solution into the bowels, into the veins, or under the skin.

I wish to say in passing that I am criticizing no treatment. I readily realize that the many experienced clinicians at the hospital have very proper reasons of their own for trying out different methods. I am this evening merely making an impartial report upon the results obtained as I saw them in a systematic observation.

Some of the results seen after the administration of digitalis:

The infusion of digitalis is given in too small amounts to have any but diuretic effects, and the free administration of water precludes any real discussion; the tincture of digitalis, digitalone and digitalin are freely given.

In 38 cases in which these drugs were persistently given, I could find no evidence of slowing of the pulse till crisis or lysis arrived; even after crisis or lysis, and after amounts of digitalis totaling from 4 to 11 drachms, the pulse-rate never once dropped below 70. In one instance, 5 minims every three hours for 21 days, totaling ʒxiv, let the pulse drop to 90, with lysis, but it rose again to 100 from the accumulation of a little fluid in the chest.

In another, after nineteen days of digitalis and the taking of ʒxj, the pulse rose from 88 to 100 as a small loculated empyema developed; this was opened and healed at once. Slowing of the pulse, of course, may not have been the effect sought for. We have no way of investigating any true tonic effect, any increase of power of contraction. The effect upon the blood-pressure in cases persistently followed is slight. One cannot say that digitalis does not help maintain a good level of blood-pressure; but one can say, however, that in the doses given it seems unable to raise it in even favorable cases, and is powerless to prevent its fall in the fatal ones.

As examples I will give:

C. 40. An acute basal pulmonary condition with consolidation, on top of a healed T. B. focus at apex. On admission pulse 120; B. P. 95, sys. Tincture digitalis, 10 minims every four hours, from December 31 to January 5. Pulse unaltered, 120; B. P. fell to 85. Patient improved and went out. Basal lesion clearing.

F. 65. An acute but mild case. Pulse after 48 hours 100; B. P. 150. Tincture digitalis, 10 minims three times daily, for 12 days; 6 drachms taken. After four days pulse 100, B. P. 135. Crisis occurred; drug continued. After 12 days pulse 90, B. P. 135.

T. 41. A mild case. On February 7, 1913, pulse 100; B. P. 130:60. Tincture digitalis, 5 minims every three hours; pulse 100, B. P. 115:55. February 9, crisis; pulse 90, B. P. 125:75. February 12, pulse 90, B. P. 105:80. While taking digitalis there developed signs of fluid at right base; pulse rose to 100. Signs of fluid disappeared in a few days.

It is hardly worth while to detail the too numerous cases in which a falling blood-pressure in spite of digitalis and other stimulants presaged the fatal ending.

The diuretic effect of digitalis could not

be certainly disassociated from that possibly produced by the water given and the cold air.

McKenzie's statements with regard to digitalis in the rapid heart of febrile conditions and intoxications are worth quoting here:

"Moreover, when the heart is affected by agents which increase its excitability the digitalis has little effect upon its rate.

"This failure of effect is also evident in conditions where the heart is affected by poisons, simple or microbic, as for instance alcohol, the poisons of infectious diseases, the specific agent in rheumatism, and the various infective affections of the heart.

"Tachycardias with the contraction starting at the normal place are due as a rule to some toxin or fever, tuberculosis, alcohol, or acute pneumonia. So far I have found such hearts unaffected by digitalis even when pushed to the extent of nausea and vomiting."

Quinine has long been considered a real remedy in pneumonia. It is given credit as such by Morgenroth, Ehrlich's coworker, and was the starting-point of work on specific chemotherapy in pneumonia, work which eventually produced a quinine derivative, æthyl-cuprein hydrate, which was well enough thought of to be used extensively by Fraenkel in Berlin, and by Sir Almroth Wright in the epidemic pneumonias of South Africa. Experimentally, however, quinine has no action upon the pneumococcus infection.

There were a considerable number of cases treated with hydrochloride of quinine and urea in the Philadelphia Hospital. The urea is generally added to prevent irritation, and possibly as a diuretic. It is usually given hypodermically or intravenously, preferably in the latter way, and of course in that case must be delivered to the lung direct.

Undoubtedly some cases seem to respond to the injection, but the general summary of 19 cases showed that eight were fatal in spite of systematic treatment.

Some results of the treatment by injection of normal saline solution in various ways:

It will be admitted freely that the cases receiving treatment of this sort are usually desperate from the start. In 22 of them treatment by continuous enteroclysis, repeated hypodermoclysis, and repeated injections into the veins of salt solution was carried out and carefully followed. I have excluded all cases that lived to receive but one or two applications of treatment. It was hard to convince oneself that the wished-for results were obtained.

Diuresis was just as well obtained by the giving of water by mouth as by giving fluid by the bowel. Severe pain in many cases and two instances of extensive cellulitis show that repeated hypodermoclysis is not harmless. The very ill cases did not show the wished-for improvement in pulse-rate, respiratory-rate, or delirium. Blood-pressure could be seen to fall in four of them during most active treatment; after intravenous injections there was seen a temporary polyuria.

Of the eight cases recovering:

Crisis took place on day enteroclysis began in 1
Crisis took place before the first hypodermoclysis could be given in..... 1
Neither the general state nor the condition of pulse seemed to require hypodermoclysis in.. 2
Crisis took place on the eighth day of hypodermoclysis, with average urine amount of 64 ounces, in..... 1
Pericarditis and empyema developed after repeated hypodermoclysis and enteroclysis in.. 1
An acute hemorrhagic nephritis was recovered from in..... 1
(Repeated hypodermoclysis never brought the urine amount above 24 ounces.)
Collapse four days after crisis and after eight days of continuous enteroclysis was seen in 1

A remark by Cushny may be subjoined:

"Isotonic salt solutions are often administered when the body has lost much fluid, as they are rapidly absorbed and are devoid of irritant action; thus, in hemorrhage these solutions are injected subcutaneously, intravenously, or per rectum. A rapid improvement in the circulation follows, and this has given rise to the *erroneous opinion* that such saline infusions stimulate the heart

directly, as well as by the mechanical effect of the increase in the fluids of the body. This theory has led to infusions being made in weakness of the heart from other causes than hemorrhage."

Cushny's statements should be carefully considered, for I doubt if anything is more firmly established amongst us than that injections of NaCl solutions are a stimulant of highest and safest order.

THE ASTRAGALUS AND ITS IMPORTANCE IN POTT'S FRACTURE.[1]

BY STANLEY FREEMAN, M.D., WILKES-BARRE, PA.

About one hundred and thirty years ago Percival Pott fell down in a London street and broke his leg. He studied the injury very carefully, and described his condition as being a fracture of the fibula with an outward displacement of the foot. This was in the preroentgen period, and his definition was quite correct, from the fact that only an external physical examination could be made of the injury. Since that time surgeons have known more about fractures than ever before, and since the discovery of the Roentgen rays about 1895 much more has been learned about fractures, and particularly those fractures about joints.

I wish to demonstrate, or point out, in this paper the relation of the astragalus to the ankle-joint, to show that it is the chief factor in the mechanism of the production of a Pott's fracture, and how its improper reduction, after being subluxated outward, is the chief cause for painful joints following such a fracture.

In order to fully appreciate the part played by the astragalus in this fracture, it is necessary to review the relation which the astragalus bears to the tibia and fibula and the other bones of the foot.

The astragalus is the bone through which the body weight is transmitted from the leg above to the foot below. Above it is bounded solely by the broad articular surface of the tibia, internally by the malleolus, and externally by the malleolus of the fibula. Below it articulates with the os calcis, to which it is attached by strong ligaments, while anteriorly it articulates with the navicular bone. The astragalus fits between the tibia and fibula snugly, and there is only enough space between the bones to allow for the ligaments and joint movement. It is broader in front than behind and fits between the tibia and fibula in a wedge-shaped manner. The tibia and fibula are held snugly to the astragalus by the external lateral ligament, which connects the fibula with the astragalus and the os calcis, by the internal lateral ligament connecting the tibia with the astragalus and os calcis, the posterior ligaments and the tendon of the tibialis posticus muscle joining them posteriorly. The tibia is firmly held to the fibula, just above the ankle-joint, by the strong tibio-fibular ligaments. The motion of the joint (tibio-astragaloid) is anteroposterior through an angle of 90 degrees with no lateral movement except when the foot is in partial extension; then a slight lateral torsion may be produced, due to the elasticity of the fibula. The function of the tibia is to transmit the body weight from the thigh to the foot through the medium of the astragalus, and it is the important bone of the leg.

The fibula acts only as an additional support to the tibia and has no function of its own, except to complete the mortise of the joint in which the astragalus lies and maintain it in position.

In studying cases of Pott's fracture with Dr. E. H. Skinner, of Kansas City, we found that in the normal ankle, when viewed by an anteroposterior *x*-ray negative, the distance between the astragalus and the tibia, or the joint mortise, in adults

[1]Read before the Luzerne County Medical Society, Wilkes-Barre, April, 1912. The material collected for this paper was obtained while on duty at the Kansas City General Hospital during my service there as interne in 1910-1911, in connection with Dr. E. H. Skinner, who took the *x*-ray plates of these cases.

was about one-eighth of an inch at the most. Several painful ankles which came into the hospital as the result of Pott's fracture some time previously incited this study. We found in most of these cases that the joint mortise was widened—that is to say, the astragalus subluxated outward so that it did not fit accurately against the tibia. But why should this have caused pain? Further studies led to the conclusion that the body weight was

FIG. 1.—A typical Pott's fracture showing a markedly displaced astragalus; also partial rupture of tibio-fibular ligaments. Good result functionally in this case with the "Dupuytren position" in a plaster cast.

not transmitted properly to the foot below, that only one side of the astragalus was receiving the bulk of the body weight. This had the tendency to throw an unaccustomed strain upon some of the ligaments of the foot, such as the internal lateral, calcaneo-astragaloid, etc., resulting in a tearing and cross-straining of the ligaments of the bones of the foot, causing pain and probably later on flatfoot. This transmission of weight we demonstrated upon *x*-ray negatives, at first by means of holding them against a cord or a rule, so that a line representing the body weight drawn directly through the center of the tibia, in a normal ankle, should pass directly through the center of the astragalus.

These are the important facts, both from an anatomical and *x*-ray standpoint, to which I wish to call your attention.

The mechanism in the production of a Pott's fracture is classically described by Dr. J. William White, in his practical considerations in Piersol's Anatomy, as follows:

"The most common method is by over-abduction of the foot; when that occurs suddenly, the weight of the body being upon the limb, great strain is thrown upon the internal lateral ligament. This may stretch slightly, or a few of its fibres may be torn, or there may be a small detachment of the internal malleolus. There is always a slight outward luxation of the astragalus, which may be momentary, but which goes back to place owing to the elasticity of the fibula. If the force is checked a sprain results. If the force continues the ligament may rupture partially, or completely; the abduction of the foot continues, the astragalus is thrown against the inner surface of the external malleolus. The fibula is converted into a lever of the first order. The astragalus hitting the lower end (the fulcrum being the stout tibio-fibular ligaments, which are much stronger than the bone, and which rarely if ever are completely ruptured, although they may be lacerated, or stretched) the weight of resistance is in the body of the bone, which is prevented from moving inward above by the body of the tibia. As soon, therefore, as the limit of the elasticity of the fibula is reached, it breaks at a weak if not its weakest point, which is from one and one-half to three inches above the tip of the malleolus. The upper end of the lever or the broken fragment is forced in an opposite direction to the lower end, the upper end most often being forced inward. If the tibio-fibular ligaments rupture, the fibula is converted

into a lever of the second order and the fulcrum shifts to its upper end. In this the outward dislocation the astragalus is more marked and the fibula may break at any point, but most likely within the limits of the lower third."

It is this type of fracture that I wish to refer to in this paper, and this is also regarded by Rose and Carless as the truly typical Pott's fracture. If a more severe force is continued the posterior ligament together with the tibio-fibular ligaments stretch or give way and a posterior luxation results. The important features in a Pott's fracture therefore are: Rupture of the internal lateral ligament, with or without fracture of the tip of the internal malleolus, fracture of the fibula one and one-half to three inches above the tip of the malleolus, with or without rupture of the tibio-fibular ligaments, and most important of all, the dislocation of the astragalus, most commonly outward and occasionally posterior.

In viewing many *x*-ray negatives of Pott's fracture, anteroposterior view, the most noticeable deformity, to my mind, is the outward subluxation of the astragalus. In a good *x*-ray negative, and particularly in a poor one, it was often very difficult to make out a fracture of the fibula, especially if the fracture is low down, whereas the relation of the fibula to the astragalus was quite clearly demonstrated, and in this way we were able to determine the extent of the injury.

In examining these cases at the hospital, two *x*-ray negatives were taken, namely, an anteroposterior view, showing the mortise of the joint most clearly, and a lateral view demonstrating the fractured fibula best and also showing any posterior subluxation of the astragalus if present. Invariably in all these fractures the astragalus was dislocated outward and posterior luxation was not so common, due probably to tibio-fibular and posterior ligaments being intact, and since the astragalus fits into the tibia and fibula in a wedge-shaped manner, the largest side of the wedge anteriorly, it is reasonable to conclude that unless the posterior and tibio-fibular ligaments are ruptured the astragalus cannot readily be displaced backward. This outward displacement of the astragalus was the prominent feature not only in all recent fractures, but in the fractures that had been reduced and discharged from the hospital as well which came back later with swollen and painful ankles. In all of these the line of weight did not pass through the center of the astragalus but to its inner side.

I have seen cases in which the astragalus

FIG. 2.—Normal ankle when looking at it anteroposteriorly. Note the relation between the tibia and astragalus. Note the line passing through the center of tibia also passes through the center of astragalus. This is what is meant by the line of weight-bearing force.

was in poor position—that is, dislocated outward, so that the line of weight did not pass through its center—and the broken fibular fragments in apparently good position, in which the functional result of the joint was bad. On the contrary, cases in which the astragalus was in good position and the fibular fragments in poor position, in which a perfect functional result was

obtained. It would seem from these facts, which can be demonstrated by *x*-ray photographs, that the broken fibular fragments are of little or no account, as regards the future use of the joint, but that the mortise of the joint between the astragalus and tibia, determined by the line of body weight passing through the center of the astragalus, is the important feature in the prognosis and the treatment of Pott's fracture.

Another point noticed in these fractures

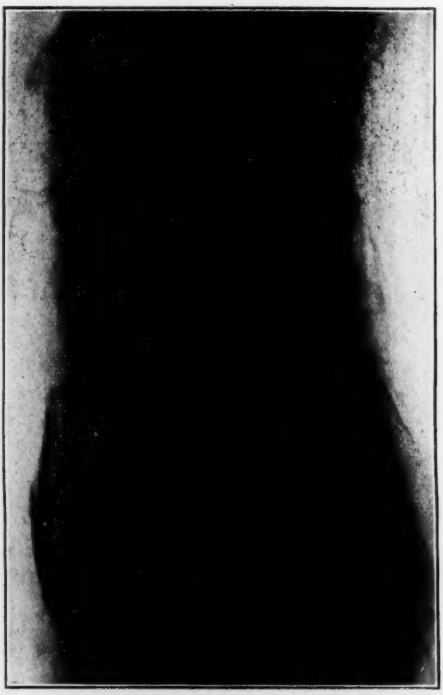

Fig. 3.—This case was reduced and placed in Dupuytren's position. Note fibular fragments are in poor position, but astragalus in perfect position. Functional result in this case was perfect. Patient has had no trouble since.

was that, by excluding the fracture of the fibula and reducing the astragalus to its normal position, invariably, but not always, the lower fibular fragment would place itself into its nearly normal position with the upper fragment. This was undoubtedly due to the pull of the external lateral ligament upon the lower end of the fibular malleolus during the reduction of the astragalus, as this ligament is usually intact and attaches the lower end of the fibula to the astragalus; in other words, there is a lever action exerted upon the fibula with the lower end of the tibia and the tibio-fibular ligament acting as the fulcrum. This did not occur in fractures of the fibular malleolus—that is, those fractures below the level of the tibio-fibular ligament in which no lever action could take place, but which went into proper position by the application of lateral pressure pads to be described later. In a few cases in which posterior luxation had occurred the lateral *x*-ray view brought this out very strikingly, and its correction was made by lifting the foot forcibly forward.

Various methods of reduction have been described by many writers, but the reasons for the same seem to be lacking in the literature. In the preroentgen period Stimson (Vol. I, 1883, page 582) states the following: "If the displaced astragalus is not reduced, the stability of the joint is lost, the foot lies outside the axis of the leg, and the weight of the body still further tends to evert it. The strain is thrown upon the internal lateral ligament, causing a painful joint." He further states that "the capital feature of a Pott's fracture, with reference to prognosis, is the separation of the tibia and fibula and the widening of the mortise in which the astragalus lies." These remarkable conclusions he established after performing many fractures upon the cadaver and dissecting them out.

The result of improper reduction of the outward dislocation of the astragalus is a painful, swollen, broadened ankle with probably limitation of motion and flatfoot later on. The results of improper reduction of the posterior luxation of the astragalus are a shortening of the foot from the malleolus to toes, prominence of the heel, and limitation of dorsal flexion of the ankle, so that the patient must walk with the toes turned markedly outward.

What method, therefore, is necessary for the proper reduction of the astragalus to its normal position and to maintain it in that position until a good result is obtained? The best method that can be recommended is to

place the foot in the "Dupuytren position," and by that I mean the position occupied by the foot when in a Dupuytren splint. This position is obtained in the following manner: The patient is anesthetized, the foot is seized by the surgeon behind the mediotarsal joint and extended, counter-extension being made by the assistant on the leg above the joint. The foot is slightly abducted and the deformity temporarily increased; this unlocks all broken fragments and pulls the astragalus away from the articular surface of the tibia, so that the movement of the astragalus can be much more easily directed. The foot is then lifted forcibly forward and flexed upon the leg to correct any posterior dislocation that may exist. The surgeon next inverts the foot forcibly, making forcible pressure on the astragalus and foot behind the mediotarsal joint until he feels the astragalus strike the tibia, or until he feels assured that the astragalus has been made to fit directly against the tibia. *This position of marked inversion and flexion of the foot is what I mean by the Dupuytren position, and must be the result of the above described manipulation.* Some men state that a good motto to follow in order to insure proper reduction of the astragalus is that the toes shall point inward, but this is a misleading motto, because the toes may be turned inward by a movement of the mediotarsal joint without the tibio-astragaloid joint being affected at all. This was pointed out by Stimson when he showed that marked inversion of the toes could take place by a movement of the mediotarsal joint without the astragalus being moved at all. *The importance of inversion of the foot is to move the astragalus over to fit against the tibia and hold it there,* therefore the foot and not the toes should be our guiding point. *The only positive proof of proper reduction of the astragalus is by an antero-posterior x-ray,* after the foot has been placed in the proper dressings.

Any splint, or dressing, which will maintain the Dupuytren position will be suitable as a permanent dressing. The one most commonly used is the Dupuytren splint, which has been used with success by Scudder, Cotton, Stimson, Mumford, and others, but its disadvantage is that in cases in which a posterior luxation of the foot exists, this is apt to recur. This splint consists of a long straight board extending from the thigh to beyond the foot, serrated at the end, well padded internally as far down as the internal malleolus and sufficiently thick so that the foot may be markedly inverted over it and still not touch the splint. It is then held in place by being bound to the splint with a bandage, which may be reën-

FIG. 4.—Broad, painful ankle after a Pott's fracture, showing good position of the fibular fragments, but a displaced astragalus. This was taken some weeks after fracture, exact date not known. Functional result was very bad. Note the distance between the astragalus and tibia; it is much greater than normal.

forced with adhesive plaster. Plaster of Paris may be used as a bandage over this splint, and it may also be used alone while the foot is held in this position, but its disadvantage is that it has a tendency to soften and the foot be displaced, unless it be held in this position constantly until the plaster has thoroughly set. Lateral splints well padded may also be used, but the same tendency toward posterior luxation exists

here as in the Dupuytren splint. From the results obtained in several cases the correctly padded fracture-box is most useful. The material necessary is a portable fracture-box with movable sides and a movable foot-board, a good-sized rectangular pillow, two triangular pads, about eight inches long, the width of the fracture-box, and the largest end of the triangle about four inches wide, or wider if necessary, this to be

FIG. 5.—Fracture of fibular malleolus; marked displacement of astragalus outward. Note line of weight-bearing force going to the extreme outer edge of astragalus.

judged by the size of the foot in the case. A pad also for the heel and one for the sole of the foot. These are to be applied in the following manner: The foot being arranged in the Dupuytren position, is held firmly by the surgeon while the assistant places the pillow on the fracture-box; a large pad is placed under the pillow to help support the heel in order to prevent posterior luxation. The two triangular lateral pads are placed on either side of the pillow, the one internally extending down to the internal malleolus (the large edge of the triangle down), and the one externally extending from the tip of the fibular malleolus to below the foot (the large edge of the triangle down). The foot is then lowered to the pillow, the heel resting upon the pad, and the sides of the fracture-box are closed tightly, but the foot-board left down until the foot has been fixed permanently by the lateral pressure. The surgeon may then relax his hold and close the foot-board, placing the pad for the sole of the foot between the foot and the foot-board, in order to keep the foot flexed upon the leg. A bandage is then tied around the fracture-box to increase the lateral pressure. The fracture-box I think is much more efficient than the other dressing for the following reasons:

First, it is easily applied.

Second, it is comfortable and holds the foot firmly in the Dupuytren position.

Third, material necessary for appliance can be had in any household.

Fourth, passive massage may be more readily given without disturbing the position of the foot.

Fifth, the pads in the fracture-box take care of a widened mortise when the tibiofibular ligaments are ruptured or when a fracture of the fibular malleolus occurs, as it has the tendency to push the fibula toward the tibia, thus perfecting the joint mortise.

Sixth, a posterior luxation cannot recur readily.

This fracture-box has given excellent results in five cases of Pott's fracture which I had treated while at the hospital. These were treated just after the fractures had occurred. Two other cases of painful ankle were forcibly reduced under ether, one six weeks after being discharged from the hospital as a supposedly good result, and one five weeks after having been taken out of the cast. Good results were obtained in both cases, after the astragalus had been forced into good position and maintained in a fracture-box for three weeks followed by the application of a plaster Paris bandage for two weeks more. Whether forcible reduction, without operative procedure, could take place later than this I am not

prepared to say, as six weeks after a patient had been discharged, or twelve weeks from the time of fracture, is the longest interval that I had in which favorable reduction of the astragalus was made. Cases in which the astragalus fails to go into position are those in which the broken bone fragments of the tibia get caught between the astragalus and the remaining portion of the tibia, and operative procedure by the open method must be resorted to. Heath and Selby in the *Annals of Surgery* for June, 1908, report several cases in which this has occurred; by operative procedure, which consisted in the wiring of the tibial and fibular fragments and placing the astragalus in normal position, good functional results were obtained. Stimson also quotes several cases in which marked malposition of the fragments interfered with proper reduction. Various severe fractures with extensive laceration of tissue and marked comminution of bone would not respond to the above treatment, and I do not include these types of fractures in this paper. In these we are often glad to save the foot regardless of ankle function, but in the vast majority of Pott's fractures, if the mortise of the joint is maintained between the tibia and the astragalus, so that a line passing to the center of the tibia also passes through the center of the astragalus, the prognosis for a functional result is better than any anatomical alignment of the broken fragments that we could make.

FIG. 6.—Large, painful ankle four months after injury. Improper reduction of astragalus. Note line of weight-bearing force.

RÉSUMÉ IN ALL POTT'S FRACTURES.

First, the secret of correction of these fractures lies in the proper adaptation of the astragalus to the tibia, allowing not over one-eighth of an inch spacing in the mortise of the joint.

FIG. 7.—Another case of fibula in apparently good position. Astragalus in poor position. Functional result bad.

Second, the astragalus should be so placed that the line drawn through the center of the tibia, representing the body weight, shall pass directly through the center of the astragalus.

Third, disregard the fracture of the fibula, as it will take care of itself when the

astragalus assumes its normal position, except when the fracture is below the tibiofibular ligament, when the apposition of the proper pads will correct this.

Fourth, the Dupuytren position is the proper position in which to place the foot, and consists in slight abduction, lifting up of the foot, flexion, and marked forcible inversion of the sole of the foot.

Fifth, do not be led to believe by the pointing inward of the toes that the astragalus is in good position, as the toes may be turned in without the astragalus being moved, by a movement of the mid-tarsal joint.

Sixth, the only positive evidence of proper reduction of the astragalus is by an anteroposterior *x*-ray view after the proper splints have been applied.

Seventh, operate only after several attempts to reduce by the given methods; the most common cause for incomplete reduction is the interposition of bone fragments.

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SYPHILIS AS A CAUSE OF PROGRESSIVE SPINAL MUSCULAR ATROPHY.

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In several of the older text-books on nervous diseases syphilis is mentioned incidentally and without emphasis, along with a host of other things, as a cause of chronic spinal muscular atrophy. In the last few years, since the use of the Wassermann test has become common, quite a little has been written on the subject, and there seems to be a growing opinion, based on the relative frequency of the occurrence of a positive reaction, that syphilis may be, indeed is, the only cause in some cases. If this opinion be correct it is important that it should be widely known because the disease is not very uncommon and because heretofore all other therapeutic measures have failed, not only to cure, but even to stop the progress of the affection; and, if antispecific medication proves to be of use, even in a few cases, it should be used, for a time at least, in all, early in the course of the disease, before wide-spread destruction has taken place in the anterior horns of the cord. It is of course too much to expect that medicine of any kind can cause dead cells to grow again, but it may be possible to stop the pathologic process from continuing and to rescue cells which are being pressed upon, but not yet destroyed, by a specific exudate. The cases reported below are of varying severity and duration. One is only a few months old, one has lasted many years. They all are undoubted cases of spinal atrophy, with the lesions confined to the anterior horns; in none up to the present time has there been involvement of the lateral tracts; none is an instance of amyotrophic lateral sclerosis. I have omitted all details in the histories and have recorded only the essential features. In none of the cases was there anesthesia for touch, pain, or temperature. In all lead and arsenical poisoning, alcoholic multiple neuritis, and syringomyelia have been excluded.

Case 1, a woman about thirty-five years old, was admitted to the Orthopedic Hospital and Infirmary for Nervous Diseases four months ago, so wasted and so palsied that she could not stand without being supported on both sides, and barely able to feed herself with a spoon or fork. She could not use a knife. There was atrophy of all the muscles of the arms and legs, most marked in the hands and forearms,

much less marked in the thighs and calves, not very marked in the shoulders. The neck, face, and trunk muscles were entirely free. The deep reflexes were absent. There was no sensory disturbance except aching in all the extremities. There were no trophic disorders save of the muscles. The bladder and rectal control was normal. She had a history of several miscarriages, and much in her history made me suspect syphilis. The notes on the Wassermann reaction have been lost, and my memory is at fault as to what the test showed. She was, however, on account of her history, put on mercury and iodide a week after admission, and continued on the treatment till she left four months later. She improved so that on going home she could feed herself, clothe herself, write with a pen or pencil, held however in a very awkward position, and walk with the aid of one person. She could get out of bed into a chair, and *vice versa*. She put on a little weight, but there was very little filling out of the wasted muscles. Power in many of them was, however, quite a great deal increased.

The patient's illness began, two years before coming to the hospital, with weakness and later with wasting in the hands. The course of the disease was slow, and she could not give the date at which the feet became affected, but was sure it was after the hands and before any trouble with the thighs. Pain was never severe but pretty constant.

She is the only one of the patients who has improved by or during treatment.

Case 2, admitted to the Philadelphia General Hospital, May 30, 1913. He is an intelligent man, and his statements as to his history are reliable. He is a widower, thirty years old, and has used alcohol and tobacco moderately. He had a chancre thirteen years ago and has had gonorrhea thrice, the last time ten years ago. He is a machinist, but has not worked for eight years. His illness began nine years ago without pain, fever, or any acute manifestation. The first symptom was numbness in the index-fingers of both hands, followed after a few weeks by weakness in them. It was some months before the muscles of the forearms became markedly weak. Wasting appeared, or at least was first noticed, soon after the weakness and continued slowly. He did not notice weakness and wasting of the shoulders until eighteen months after the onset. He did not lose the use of his arms entirely until four years ago, and at that time realized his legs were weak and saw that they were wasted. He has not stood alone for two years.

Now (Nov. 22, 1913) there is almost universal wasting of the voluntary muscles, including those of the neck. The chest muscles are so wasted that breathing is almost wholly diaphragmatic. He cannot hold his head up more than a few seconds. There is marked lordosis, which is corrected if the body be held supported, with the convexity to the right. He cannot stand or walk or use his arms. He is a living skeleton. All the deep reflexes are absent. Stroking either sole causes withdrawal of the foot. Sexual power and feeling are gone. He controls the bladder and rectum well. There are no sensory disturbances of any kind. Muscular power is so poor that he is almost entirely helpless. The Wassermann test is positive.

A few doses of K. I., gr. 5 t. d., caused sneezing, running from the eyes and nose, and stiffness of the jaw, and in a short time it was necessary to stop its use. He is now on mercury, but it has had no effect. His condition is the same as on admission.

Case 3, admitted November 8, 1909. Negro, farmer, forty-eight years old. Denies venereal disease and alcoholism. He complains of inability to walk and general helplessness. The trouble began about three years before admission. The first symptom was pain in both wrists, followed by atrophy and weakness in both hands. Later difficulty in walking began, and two years ago he lost power of walking entirely. Pain has been a minor symptom, though he has had some dull aching sensations in the wrists and knees.

Examination on admission: He cannot walk alone. When supported on both sides he walks, or rather goes through the motion of walking, with marked foot-drop. There is marked wasting in the hands, arms, and shoulders. Claw-hand is shown on both sides. There is atrophy of the anterior thigh muscles. No sensory disorder. The eyes are normal. There is no wasting of the face. All the deep reflexes are gone. A weak positive Wassermann reaction is present.

Now (Nov. 25, 1913) he is chair-ridden. Claw hands. No wasting of trunk, face, or neck. General wasting of forearms and calves, and some of the arms, shoulders, and thighs. Sensibility is normal everywhere. The knee-jerks are absent on both sides, but striking the right patella causes slight adduction of the left thigh. Stroking either sole causes slight withdrawal of the foot. The right side of the tongue seems to be a little wasted. There has been no real change in his condition for several years. The disease seems to have come to a standstill. He was given iodide on admission, with no effect.

Case 4, male, forty years old. Admitted July 27, 1897. Five years before admission he began to have weakness and wasting of the arms. On admission there was marked wasting of the hands, forearms, and arms. The deltoids were well preserved, but there was some flattening of the muscles of the scapulæ. No other muscle-wasting anywhere in the body. The thigh muscles were particularly well developed. There was marked weakness of the arms in flexion and extension, and also weakness of the wrists and fingers. Thermal, tactile, and pain sense were preserved. The left knee-jerk was much diminished, the right absent.

February 3, 1904. Can still walk without aid, but the right foot drops. Marked wasting in both thighs. Right knee-jerk absent; the left absent but reënforcible. Slight normal plantar reflex. No sensory disturbances were present.

February, 1905. Is still able to walk. Sensibility still normal.

January, 1906. Walks without help but with dropping of the right foot. Flatfoot on both sides.

June 28, 1907. Some wasting of the face. Wassermann negative.

Now (Nov. 22, 1913) cannot walk, nor use hands. Universal wasting of the arms and legs, some of the face, none of the chest or abdomen; slight wasting of the neck muscles. Deep reflexes are all absent. No sensory disorder. Bladder and rectal control good. No trophic changes are present save in the muscles. There is no difficulty in speech or swallowing. There has been no change in his condition for several years.

Case 5, admitted November 3, 1913. Aged thirty-two years, single, laborer. Born in Ireland. Gonorrhea five years ago. Syphilis is denied. He is a drinker. He has been ailing about three months. Began with numb, dead feeling in the left hand, soon followed by loss of power. Soon after he began to have the same feeling with weakness in the right hand. He had at the beginning, but rarely now, cramp pains in the calves. Bladder and rectal control has always been good.

Examination: Slight wasting of the thenar and hypothenar eminences in both hands. Marked loss of power in all movements of the hands. Some weakness in flexing and extending either forearm. Shoulder power good. Gait good. There is no visible wasting of calves or thighs, but the muscles feel soft. There is no marked loss of power in the legs. Right knee-jerk is active but not spastic, and is accompanied by adduction of left thigh. The left knee-jerk is less marked than the right, and is about normal. Both bicep jerks are normal. Muscle jerks in the arms are very pronounced. Cremasteric and plantar jerks are normal. Achilles jerk is slight. There is no tactile or other sensory disorder in the arms or legs. The mental state is good. No wasting of the tongue or face is present. Urine is normal. Eyes are normal. A weak positive Wassermann reaction is present.

He is now on specific medication, but

has not been under treatment long enough to show any result. Beginning immediately after admission he was given strychnine hypodermically is ascending doses, up to one-twentieth grain daily, for some days, but with no result.

To sum up, in five cases of spinal progressive muscular atrophy, the total number under my care at the present time, one shows a positive Wassermann reaction, two a weakly positive reaction, one a negative reaction, and in one the record is lost, but in it the diagnosis of syphilis is safely made on clinical grounds. I am entirely uncertain how much reliance should be placed upon a weakly positive reaction in making a diagnosis of syphilis. I am not convinced that it proves syphilis, unless there also be clinical signs of the disease, and progressive atrophy is not such a sign. Further, the mere presence of a true positive Wassermann reaction, even assuming that it proves active syphilis, does not prove that a patient may not have some other disease at the same time. The really great improvement in Case 1, however, under specific medication seems to be evidence that syphilis may be a cause in some cases, and arithmetic chance would not account for the number of cases showing a positive Wassermann reaction. Considering everything, it seems to me it would be proper to give every patient, especially if seen early in the course of the disease, a trial course of specific medication. It must be remembered that in several of my cases the illness had lasted so long and so much destruction had occurred as to render all therapeutics useless, so that the fact that they have remained unimproved indicates nothing. In reaching a diagnosis of syphilis in cases that do not present characteristic clinical symptoms at the time of examination, more reliance must be placed on the Wassermann reaction than on the patient's statement, because patients err, sometimes knowingly, often ignorantly. The test itself, unless made by a skilled person, is useless and often misleading.

In treating cases of muscular atrophy by antispecifics one must be sure that the wasting is not due to arsenical multiple neuritis resulting from the previous administration of salvarsan. I had one such case. On first examination I was inclined to believe the patient was suffering from anterior horn disease, but the symptoms and course of the disease were atypical, and as he had been given salvarsan only a short time before I saw him, I concluded, after further study, that he was suffering from arsenical multiple neuritis. One can imagine how much evil another dose of salvarsan would have done him. On the other hand, there is no type of muscular atrophy in which iodide is contraindicated, or at least none in which it can do harm.

ADRENALIN IN OSTEOMALACIA.

The beneficial influence of adrenalin treatment is well illustrated in a case of recurrent osteomalacia extending over a period of sixteen years reported by SALIS in *Münchener Medizinische Wochenschrift* (November 18, 1893). An interesting feature of the case is the prompt action of the treatment (Bossi's method with Parke, Davis & Co. solution) in the face of failure of every other known remedy. About 150 injections of 1/2 Cc. twice daily, increasing, decreasing, or even omitting the dose for a few days as the case requires, is the procedure advised by Bossi. As a rule, the more pronounced the affection the stronger will be the dose that can be borne. In acute cases a complete restitution of the bony structure can be looked for, although in chronic cases, of course, amelioration alone is possible. The advocates of Bossi's adrenalin therapy (Baum, Mészarós, Rabaudi, Merletti, Angeli, and others) obtained more or less prompt, satisfactory results without recurrences in all their cases. Other authors sound a warning note against or even oppose the treatment, having obtained little or no specific reaction, in some instances the administration of the drug having been followed by untoward

symptoms, bradycardia and the like (v. Velits, Gröbel, Arcangeli).

In his early work on the subject Bossi arrives at the conclusion that the action of suprarenal extract is the most prompt of all non-surgical procedures, and that it should be applied for a long period in all forms of osteomalacia before castration is resorted to, and that in classic cases (pregnant women) one's first thought should be of deficient suprarenal function. A recurrence in the case under consideration having taken place eleven years after castration seems to point to the fact that while osteomalacia is without doubt a disturbance of the internal secretions it apparently is not related to ovarian function.

Cristofelettis, in his discussion of adrenalin therapy, emphasizes the fact that adrenalin does not influence lime metabolism in the sense of lime retention, and, therefore, cannot by itself be regarded as a curative in osteomalacia, but he notes that in some cases it had a more or less beneficial effect. Schmidt and Speyer hold similar views. But Bossi and others observed reintegration phenomena in bone formation, straightening of misshapen bones, and structural changes (shown by skiagraphs) as results of the treatment, thus refuting Cristofeletti's theory.

Bauer reports beneficial effects from the use of phosphoric acid. His work is most illuminating. By his experiments he shows that all disturbances of glands with internal secretion are benefited by adrenalin, and illustrates a case in which symptoms of osteomalacia disappeared along with those of tetanus. The results of the treatment indicate a disturbance of equilibrium in the function of the organs with internal secretions (epithelial bodies, suprarenal, thyroid, and generative glands) rather than a decreased activity of the suprarenal gland or a paralysis of the same. Thus, in osteomalacia this disturbed equilibrium must be sought in the phenomenon of placenta formation.

The cumulative action of adrenalin is doubted by many authors, especially in view of Bossi's cases, in which large quantities were ingested. The symptoms of bradycardia noted by some have been attributed to the manner of administering the dose, subcutaneous or intravenous—*i.e.*, in subcutaneous injections a drop may have escaped into the veins. Salis contradicts this thesis inasmuch as such symptoms as palpitation, trembling, etc., were more frequent and more pronounced at the end than at the beginning of the treatment. Be this as it may, Bossi's adrenalin therapy deserves earnest consideration as an effective palliative in osteomalacia before or after castration (Salis).

Roentgen therapy was about the only treatment not tried in the case under consideration, as the presumption was that there were no remains of ovaries present. But even so, the results of adrenalin therapy in non-castrated men and in young women are so encouraging that the method is preferable to the tedious and expensive one of *x*-radiation.

Neither Kienbock (*Radiotherapie,* 1907) nor Gauss (*Tiefentherapie,* 1912) mentions radiation in the treatment of osteomalacia. Fraenkel (*Die Röentgenstrahlen in der Gynäkologie,* 1911) cites a non-castrated case in which adrenalin therapy failed utterly, and in which radiation was followed by relief from pain and arrest of the disease for a period of two years. Decided improvement resulted from a second series of treatments. He finally admits that it was difficult to obtain total cessation of ovarian function, which is most essential for the complete cure of osteomalacia, although a decrease in menstrual periods frequently suffices in young women, as illustrated by his case. Fraenkel prefers Roentgen therapy to castration principally because the cessation of function caused by the latter may be avoided by the possibility of obtaining the regeneration of the much reduced ovarian activity. Salis believes that the complete cure obtained by the destruction of ovarian function by intense *x*-radiation differs very little from that obtained by castration, but that incomplete *x*-ray treatment with constant recurrences has little or no value.

EDITORIAL.

EXPERIMENTS AND PRACTICE.

Some months ago we called attention in these pages to the fact, generally well recognized by the profession, that at the present time the greater part of medical practice, with particular reference to treatment, must rest upon experience rather than upon experimental investigation. The reasons for this are obvious. The sum total of human experience lasting over many years cannot be cast aside when the results of one experimenter seem to be in conflict. Not only is this true because it is governed by a statistical law, but it is also true because it constantly happens that one investigator simultaneously with, or soon after, another publishes results which are contradictory or at least not confirmatory, the difference in result being obtained because of the differences in the individuals, in the doses or quality of the drug employed, in the peculiarities of the animals used, or, finally, because the results in animals are obtained from a living thing in health in distinction from those which are obtained in medicine when we are dealing with a living thing in disease. Furthermore, an important factor is the difference between the reaction of healthy animals to certain drugs and the reaction of a healthy man to certain drugs. Not rarely, experiments upon animals give results which are so brilliant and so conclusive that they carry conviction and alter the whole trend of medical practice, and when such a brilliant result accrues, there is a natural tendency to put implicit faith in all other researches.

With the constantly increasing knowledge which we have presented to us of the action of drugs upon human beings and animals in the laboratory it is evident that in addition to the laboratory investigator and the trained clinician there should be developed a third party whose function it is, as far as possible, to coördinate the results obtained by the other two classes. It is useless for the laboratory investigator to belittle the results of his clinical comrade, and it is equally absurd for the clinician to belittle the results of the experimentalist. As a matter of fact the experimentalist is less justified in condemning the methods of his practical colleague than the practical colleague is in condemning the results obtained by the laboratory man. If the physician as a result of years of experience has found that certain remedies do good, the experimentalist not only must be very sure of his ground before he issues a criticism, but also should bear in mind that facts cannot be controverted by argument.

We have recently, in these pages, called attention to the assertion of a theorist that the common employment of the ammonium preparations in bronchitis was devoid of good sense, pointed out that such a statement is opposed to the general experience of medical men, and also that the theorist has recently been contradicted by investigations carried out in laboratories elsewhere.

As an illustration of one of the most noteworthy apparent differences between experimenters and clinicians we may cite alcohol and its use in disease. That this drug has been abused in the past is of course well known; that the experimentalist has proved beyond all doubt that it is a depressant and never a stimulant must be generally recognized. The middleman, whom we have referred to as a necessity at this time, finds no difficulty in coördinating such opposing views because he recognizes, first, that the laboratory experiments were made upon healthy animals or men; secondly, although alcohol may be harmful to the healthy man, in the presence of fever it is readily burnt and gives energy to the body at a time when the digestion and assimilation of food is greatly impaired. Finally the middleman is able to point out that in many instances the administration of alcohol in disease does good by restoring

circulatory equilibrium, dilating the blood-vessels of the skin, and so relieving internal congestion.

In connection with this subject we have read with interest a contribution in recent medical literature which is well worthy of consideration. In a paper in *American Medicine* for September, 1913, no less an eminent authority than Dr. Abraham Jacobi, recently President of the American Medical Association, elected to that office, although absent from the meeting, because of the universal high regard of the profession, records his clinical experience in the treatment of disease with alcohol. After quoting some of the literature of the subject he reverts to certain cases of diphtheria which he treated many years before antitoxin was introduced, and adds that after sixty years of practice he trusts in alcohol as a powerful remedy in cases of diphtheritic and other sepsis, and adds with charming ingenuousness: "I may be credited with ample experience both in successes and failures extending over half a century." He further adds: "I offer no theory and no laboratory experiments on well or sick guinea-pigs. My laboratory has been different. My life has been spent amongst the sick only and the recovering and the dying." He then advocates the free administration of alcohol in grave septic cases, and cites the instance of a girl of seven years in which the physician in attendance was giving alcohol freely, but in Jacobi's opinion not freely enough. It turned out that she was taking half a pint a day and retaining it. Jacobi ordered another half pint a day, making a pint in all, and the patient got well. So, too, in another case, a boy of three years with formidable symptoms of mixed infection was given up. Jacobi thought he could get well if he received at least a pint of whisky daily. Five days later the patient was said to be insane. He was not insane but drunk, and Jacobi states that he wants his readers to know that no amount of whisky will lead to intoxication when its effect is wanted to combat sepsis. In the next line he reiterates this statement, claiming that as soon as the patient was out of danger he became drunk, but not before. Jacobi admits that not all his cases have been cured, and freely states that he belongs to the class that has to meet failures. He cannot explain the antiseptic action of alcoholic beverages when administered in sufficient doses. He merely states his clinical facts and adds: "Let somebody else explain. Meanwhile take the hint."

The other communication to which we refer appears in the *British Medical Journal* of September 27, 1913. An English physician, Hardman by name, complains that too much space is occupied by long, wearisome details of experimental work, the results of which are too often negative, and when positive could be compressed into a short paragraph easily memorized. He refers to the conflicting views as to the depressing influence of chloral on the heart, and states that he has given and taken large doses, as much as forty grains, without ill effects. He protests against the condemnation by some theorists of trional and asserts that he has never seen any bad effects from it. He winds up his communication with this sentence: "One must not push too far conclusions derived from experiments on normal animals when one comes to the treatment of abnormal humans."

We close this article with a repetition of the statements that we made in its beginning, lest some reader carelessly or wilfully gain a wrong impression as to our attitude. Let us welcome all investigations since they add to knowledge. Let us try not to be hopeless as to treatment when so-called scientific research seems to throw doubt upon our clinical experience; and finally, let us keep abreast of investigations so that perchance we may obtain facts which will render measures which we are employing empirically more rational, thus placing them upon a foundation from which they cannot be jarred by occasional failure, by laboratory reports, nor by the criticisms of well-meaning but inexperienced colleagues.

THE PRESENT SITUATION IN SYPHILIS.

The definite determination on the part of Schaudinn that the spirochæta is the causative agent of syphilis, the development on the part of Wassermann of a test by which syphilitic infection can be fairly certainly determined, and the brilliant production of salvarsan by Ehrlich, whereby an agent has been discovered which indirectly destroys the spirochætæ, have followed each other with such extraordinary rapidity that the oldest disease known to man possesses for the physician of to-day so many new aspects that he has a justifiable excuse for being somewhat bewildered. A very valuable article bearing the title of this editorial appeared in the *American Journal of Medical Sciences* for October, 1913, by Pusey.

It is not our intention to deal with facts that do not possess a therapeutic bearing, but many of the points which he mentions are so nearly related to therapeutics that they may be well considered a part of it. After pointing out that there are many forms of spirochætæ which may infect man, and that it requires a skilled microscopist to determine that the particular spirochæta which is present is that of syphilis, before a microscopic diagnosis can be considered accurate, he proceeds to determine the value of the Wassermann reaction in diagnosis, which in turn covers the administration of remedies. While admitting that in most cases the Wassermann reaction is specific for syphilis, he points out that it becomes positive only when the disease has become generalized and that a positive reaction will occur in only about forty per cent of the cases at the time of the appearance of the initial lesion. Six weeks after the period of this lesion it becomes positive in about 75 per cent of cases. Simultaneously with the development of the cutaneous eruption the test is positive in 80 per cent, and in late cases in about 50 per cent. A negative reaction, if only one test is made, is of little more value than a negative report upon the presence of tubercle bacilli in the sputum, since errors in technique on the part of the most skilful examiner may lead to an erroneous report. Pusey says that experience teaches us that in twenty to thirty per cent of cases of latent syphilis in which there is every evidence that the spirochæta is absent, the Wassermann test is nevertheless negative. Where syphilis is strongly suspected, therefore, more than one Wassermann test should be made, and Pusey adds that nothing is surely more true than that the Wassermann test in diagnosis must be constantly checked and compared with the clinical findings, since if the latter are not included, serious mistakes will ensue.

Concerning the relation of the Wassermann test as an index of treatment it may be fairly said that when a Wassermann test is repeatedly positive, active treatment should be instituted, and it may be fairly stated that the subsidence and disappearance of a positive Wassermann during treatment is an evidence that the treatment is efficient, although, on the other hand, such evidence is not conclusive, particularly if clinical symptoms still persist. In regard to the important question, how long must the Wassermann test remain negative before we can call the patient cured? Pusey expresses the opinion that as yet we cannot answer this question positively, and it will be many years before we will be able to do so, but that each year that goes by and which yields a negative Wassermann justifies the belief that the disease will not have another outbreak. In support of this view he quotes Bayly to the effect that a series of negative tests taken at intervals of from three to six months after all treatment has been given up is necessary before the patient can be regarded as cured, and that even after twenty years have passed it cannot be absolutely certain that the disease is effectually and permanently obliterated.

It is, however, in connection with what Dr. Pusey says concerning the efficiency of salvarsan that we have the greatest interest, and we fear that some members of the profession will be shocked to learn

that this so-called sure specific has up to the present time in the hands of the best practitioners failed to give the results which it at one time promised. In the first place it cannot be denied that salvarsan has certain disadvantages, for it has not been found the safe remedy that it was hoped to be, and fever, nausea, diarrhea, and a number of other serious complications sometimes follow its use. Further than this there can be no doubt that a very considerable number of deaths have resulted from its employment, since there are already a number on record, and it is probable that a far greater number have not been reported. Again, some of these deaths have occurred in the early stages of syphilis, when death from syphilis itself is exceedingly rare and when a number of years of usefulness might have been enjoyed by the patient without such treatment. Furthermore, the development of the so-called Herxheimer reaction, whereby superficial syphilitic manifestations are increased, may in the case of syphilis of important nerve centers produce conditions which are distinctly unfavorable to life, and therefore in many nervous syphilitics the question will arise as to whether there is greater danger from the use of salvarsan than there is from the disease, the more so as its use sometimes has seemed to light up pathological changes in the nervous system which for the time were fairly quiescent. Of course, the answer to these criticisms is that considering the thousands of doses that have been administered the untoward effects have been rare. We must not be too much afraid of the remedy, but we must not be too bold with it.

We have not space to give in detail all the facts which can be brought forward concerning the effects of salvarsan upon the disease itself. There is no question of its remarkable influence upon the initial lesion and on mucous patches, but Pusey believes that its influence upon cutaneous eruptions is no more prompt or complete than that of mercury, and furthermore that the same holds true concerning glandular syphilis. In gummatous lesions of the skin it is efficient; but in gummatous lesions of internal organs it is no more efficient than the older remedies. Our readers will also be surprised to hear that in Pusey's opinion the employment of salvarsan except in the early primary stages is no more effective in reversing the positive Wassermann than is mercury, and that in moderate doses it is less effective than safe, vigorous mercurial treatment.

While it may be generally accepted as correct that the free use of salvarsan in the primary stages presents the best method of inducing a cure, it is also a fact that after this brief period is past the prospect rapidly changes, and, to use Pusey's words, "becomes less promising from week to week." He even goes so far as to state that after secondary eruptions are established the promise of cure almost or quite vanishes. This belief is based upon the fact that many relapses occur. Indeed, in nervous syphilis a number of writers have expressed the view that relapses are more common when salvarsan is used than when mercury is employed.

Finally, in concluding his paper Pusey states that our present knowledge gives us no right to believe that salvarsan will lessen the occurrence of parasyphilitic nervous infections, and that there is some ground for fear that it may predispose to them except in those cases in which it cures the disease. His most encouraging word concerning its use is that if employed vigorously before the disease is generalized there is strong ground for believing that syphilis can be aborted.

VERONAL POISONING.

It is inevitable, as we have frequently pointed out on previous occasions, that any drug which possesses enough power to do good when properly used also possesses sufficient power to produce ill effects if not so employed. It is also a fact that any drug which is capable of acting as a sedative upon the nervous system in an agreeable manner is not only bound to be em-

ployed largely by physicians, but must inevitably fall into the hands of the laity, who, directly or indirectly, learn of its effects, and who often continue using it long after a physician has presumed that its ingestion had ceased. It is a tribute to this drug and its nearly-related compounds that although it has been used almost universally for nearly a decade, so few cases of poisoning resulting from its abuse have been recorded. Possessing a technical name which, to the ignorant, would seem to indicate that it is capable of doing anything that is evil, it has nevertheless exercised a potent influence for good in many persons who really needed it.

As its use becomes more wide-spread by non-professional individuals, cases will undoubtedly multiply in which disagreeable effects ensue. In the *Lancet* of October 25, 1913, Willcox writes an interesting paper upon this subject. He tells us that toxic symptoms may occur after the administration of veronal even when a small or moderate dose is given, provided an idiosyncrasy exists. This holds equally true with quinine and iodide of potash. In other cases, toxic symptoms develop when excessive doses have been taken, and last of all there is a class of toxic symptoms which are induced when repeated small doses are used in what might be called the "veronal habit."

The toxic symptoms from a single large dose are drowsiness, headache, ataxia, and finally deep sleep, which may deepen into coma, with cyanosis and rapid stertorous breathing. The temperature may rise to 103° or more, and an examination of the lungs will show areas of dulness on percussion, bronchial breathing, increased vocal resonance, and moist sounds; in other words, many of the physical signs of pneumonia. These signs may develop still further into those of pulmonary edema. When these symptoms develop recovery naturally is rare, but death as a rule does not occur soon after the dose is taken—that is, not in less than twenty-four hours, and the symptoms may last as long as four days.

When the drug is abused by being taken continuously, the patient suffers from disorders of digestion and there may be erythematous scarlatiniform eruptions of the skin. The skin lesions are, however, not common. On the other hand, albuminuria, scanty urine, and hematuria may develop, but the albuminuria is the only condition which is fairly constantly present. Willcox, however, states that in several severe cases of veronal poisoning he has met with a remarkably free secretion of urine, although catheterization is often necessary because of the comatose condition of the patient.

In chronic cases—in other words, cases of "veronal habit"—the patient often develops visual hallucinations and delusions, and there may be a condition of dual existence with tremors and marked ataxia, so that the patient resembles a person suffering from cerebellar disease. The gait closely resembles that of a person intoxicated by alcohol, and Willcox asserts that there is a complete loss of moral sense as in the morphine habit.

Patients with renal diseases are much more intolerant than those with normal kidneys, and those who are constipated usually develop toxic symptoms earlier than those who are freely purged or whose bowels are moved regularly.

So far as lethal cases are concerned it may be stated that death has been known to follow the use of 10 grains. This in no way militates against the common employment of the drug, for death has occurred from the use of ¼ grain of morphine, and even after the ingestion of comparatively small doses of quinine. Willcox states, however, that a dose as large as 50 grains in a healthy adult would be dangerous, and may be regarded as the "average minimum fatal dose." As this is at least five times the quantity ordinarily given, it illustrates how safe the drug is, and when it is remembered that much larger doses have been taken without death resulting we have another illustration of its safety, the more so as in most of the recorded cases of fatal veronal poisoning the patients have been the

subjects of disease and often in the habit of using alcohol or morphine to excess.

It seems to be unquestionably a fact that some persons develop a tolerance to veronal, but this tolerance is never as great as with morphine or cocaine.

The treatment of acute poisoning, if instituted within four hours after the drug is swallowed, is the washing out of the stomach with the stomach-tube and then pouring into the stomach through the tube one-half to one pint of strong black coffee, following it with an ounce of castor oil or other purgative. Strychnine and digitalis are also advantageous, and warm normal salt solution may be given subcutaneously or by the rectum. Oxygen inhalations may be employed, and the physician should remember to examine the bladder lest it suffer from paralytic distention. Should there be suppression of urine, caffeine may be given hypodermically, and camphor and pituitrin are also useful. In those cases in which the symptoms persist over many hours the question of feeding by means of the stomach-tube is an important one. It is interesting to note that in those cases which have died from the effects of veronal cyanosis persists, the lips, face, and finger-tips being markedly discolored. The heart is usually found widely dilated chiefly on the right side, and the air-passages are congested and contain much mucus. The lungs show congestion and edema, and patches of consolidation. The brain and abdominal viscera also show marked congestion. The post-mortem conditions in veronal poisoning are, however, not by any means characteristic. In cases of medicolegal importance the urine should be carefully preserved for chemical analysis, as this may aid materially in determining the character of the poison.

Finally, to reënforce what we have already said in regard to the comparative safety of this drug we find that from 1904 to 1910 in England and Wales there were only twenty-three cases of fatal poisoning according to Willcox—one in 1906, one in 1907, four in 1908, thirteen in 1909, and five in 1910.

THE EMPLOYMENT OF RADIUM IN THE TREATMENT OF CANCER OF THE PROSTATE.

It is generally recognized that prostatic enlargement exhibits a distinct tendency toward malignant change. This is shown by the fact that a considerable percentage, as high as 10 per cent, of prostates removed for relief of obstruction show already a beginning malignant change. Cancer of the prostate once developed to a degree that it is recognizable as such by examination is practically incurable. It is true that extensive operations have been devised and practiced for its ablation, and that isolated cases are reported in which the cure has lasted for some years. But as a rule the disease in so far as permanent cure is concerned is beyond surgical help, and the death is fairly rapid and extremely painful.

It is for this reason that the profession naturally turns to any means which gives a reasonable promise of help, and that articles such as Pasteau's and Degrais's (*Journal d'Urologie,* tome iv, No. 3, September, 1913) are of especial interest. Recognizing the grave dangers incident to operation and its uncertainty, they turn to a method which seems promising, since it has been shown by histological studies that both epithelial cells and those of sarcomatous tissue are particularly vulnerable to radium emanations. As to the method of application, there are numerous close approaches to the prostate making fairly direct treatment easy. They consider perineal puncture and an incision in each lobe of the prostate for the insertion of the radium tube, which is to be retained as long as needful. Intravesical applications may be made through the suprapubic opening usually needful for drainage purposes in the inoperable cancers of the prostate, the rectum, and the urethra. Close approach is possible without the need of any operation, the application being made through both mucous channels. As to the intraprostatic method of application, they treated 15 patients in whom the clinical diagnosis of cancer was made after a very thorough

examination. Most of these were unwilling to continue treatment. As a rule they experienced considerable relief from their symptoms, particularly the retention of urine, so marked that a number of them stopped treatment because they considered themselves cured. They report upon a medical man, fifty-seven years old, who in November, 1908, and then in April, 1909, suffered from some hematuria in the beginning of micturition. In September, 1909, there was a cystoscopic examination which demonstrated the presence of an infiltrated, inoperable vesical tumor growing from the prostate into the bladder. The prostate itself was nodular, hard, and fixed and thickened. The first series of applications of radium was made in October, 1909. Each were two hours, with a tube of 2 cgms. for the first séance and 5 cgms. for those following. On the 16th of October, 1909, after the first three applications, cystoscopy showed a notable diminution of the tumor. The second series of five applications were made in December and January, 1910. In February cystoscopic examination failed to show the presence of a tumor. Rectal examination showed a prostate very markedly lessened in size, non-lobulated, and of normal consistence and normally mobile. Still another series of applications of radium were made in April and two applications made in June, all in the prostatic urethra. Cystoscopic examination made in October, 1910, showed a healthy bladder. March, 1911, a new series of radium applications was made with a tube of 5 cgms., each application being of shorter duration. In November, 1911, the prostate was found quite normal to rectal examination. Still another series of treatments were given in November without consecutive reaction. In June, 1912, another application was made; three more applications in October and November, 1912. July, 1913, the patient was entirely well and without symptoms, excepting a slight excess of white blood cells. The prostate was smaller than normal, completely soft, and had almost disappeared. Cystoscopic examination showed that at the bladder neck there were two little adenomatous projections, each about 1½ mm. in diameter.

This is the star case. The truth of its teaching is corroborated by another one suffering from prostatopelvic carcinoma in so far as rectal examination could show this diagnosis. As radium treatment progressed there was a steady alleviation of both his local and general symptoms and a gradual melting down of an extensive induration. Three years after the beginning of the treatment there is distinct diminution in the size of the prostate, though the patient is compelled regularly to pass the catheter for relief of retention. His general health is good. Several cases are cited showing the marked diminution of the prostate under radium. In still another case in which the wooden nodular prostate became soft, prostatectomy was done, and microscopic examination showed the presence of what the authors call epithelial adenoma.

The authors observed two cases exhibiting unmistakable voluminous inguinal adenopathy. In these two radium treatment of the prostate not only lessened the size of this gland and made it soft, but had a very distinct effect upon the inguinal enlargement—indeed, in one case made it disappear entirely. They believe that when the diagnosis of prostatic cancer is made there should be no hesitation in the application of radium, and this as nearly as possible to the seat of infiltration. Indeed, all cases of suspected prostatic cancer may also be subjected to the radium treatment.

As to the method of application the catheter which passes in most readily should be employed. The catheter should be a soft one, but sufficiently rigid to contain the metal applicator. It should have thin walls and a large lumen, but of such caliber as will pass easily. The woven elbow catheter answers the purpose admirably. The catheter is introduced until its eye lies in the bladder, the elbow then necessarily lying in the prostatic urethra, and the radium bar

tube is pushed to the elbow. Preferably it is introduced to this point before the catheter is passed into the bladder. The catheter answers as a filter for the rays. As containers of the radium-bearing material silver tubes .5 mm. in thickness are employed, each containing 1 to 5 cgms. of sulphate of radium. The author applied tubes of 2, 4 and 5 cgms. The radium-bearing catheter should never be introduced unless the bladder contains liquid. Thus the surgeon is enabled to determine exactly when the eye enters the bladder, and consequently when the elbow of the sound lies in the prostatic urethra. Application is according to the sensibility of the patient and the reaction, but may be every four to six days, and for two, three, or four hours each time with a tube of 2 to 5 cgms. with a thickness of .5 to .3 of a millimeter. After a series of five or six applications treatment should be suspended for three or four weeks before taking it up again. Treatment should be conducted with the utmost cleanliness. Following the application there is often lassitude and fatigue, sometimes torpor, never fever; at times local heat and pruritus. One or two hours following the application there is local irritation with heat and burning. There may be a certain degree of spasm of the urethral sphincter. There is usually frequency of micturition. Hematuria or ureterrhagia is exceptional. Occasionally there may be an evacuation of mucopurulent débris.

It must be confessed that a careful reading of this communication upon radium and its value in the treatment of cancer of the prostate is not convincing. There seems to be one cure reported in which the diagnosis certainly is open to question. There seemed to be many betterments, but such betterments are being constantly reported in all chronic conditions, and incident to almost any form of treatment tried by an enthusiast. It has, however, been definitely proven that the radium emanations are curative of certain malignant skin growths. They have apparently signally failed in all deeper involvements. Their trial in deep carcinoma has been without success, and that they should succeed in prostatic carcinoma seems still less probable. In the absence of all other means, however, doubtless this will offer a method which will at least keep hope alive in the breast of the patient and give to the doctor a legitimate excuse for his presence.

THE TREATMENT OF STRANGULATED HERNIA.

Though a familiar subject, on account of the frequency of the condition and its inevitable and rapid progress toward a fatal termination unless very prompt measures are taken, a discussion of strangulated hernia is always justified. Gussew of Riga (*Deutsche Zeitschrift für Chirurgie,* Bd. 124, Heft. 1-4) in dealing with this subject bases his discourse upon an experience of 420 cases, and notes that advances in the treatment of strangulated hernia have not kept pace with those in reference to other acute surgical diseases of the abdomen. The key-note of the author's advice is embodied in Professor Lanz's injunction "Weg mit der Taxis" and in counseling early operation, an admonition with which it is certain that the best surgeons are in agreement, because it is realized that taxis and delay in operation belong only to preantiseptic days. Taxis should as a rule not be attempted by the practitioner, especially in the country, because of the lack of facilities for dealing with the evil results which it is known to produce. It is justified under such conditions only in the very old and decrepit and when it is impossible to carry out an operation. The mortality in this series of cases was 27 per cent; in gangrenous cases it was 57 per cent, and in non-gangrenous cases 12.4 per cent; in cases operated upon the first day the mortality was 5.8, and on the seventh to eighth day 60 per cent. These statistics serve only to emphasize the great importance of early surgical treatment. The usual causes of death are peritonitis 67.3 per cent, shock 15.9 per cent, pneumonia 37 per cent. The

author believes that the mortality from strangulated hernia can be greatly reduced by operating more frequently under local anesthesia, improvement in operative technique, earlier admission of patients to the hospital, and by avoidance of taxis in general practice, all of which should receive our hearty indorsement.

REPORTS ON THERAPEUTIC PROGRESS.

THE USE AND ABUSE OF TUBERCULIN.

WOODHEAD, in the *British Medical Journal* of August 9, 1913, sums up his conclusions as follows:

Under proper conditions the exhibition of tuberculin exerts a favorable influence on the course of tuberculous disease, and stimulates beneficial reaction of the tissues.

Up to the present tuberculin has never conferred complete immunity to tuberculosis, either in man or in animals.

Relative immunity may be produced by the injection of small doses, and the only safe method of administering tuberculin treatment is to avoid all but mineral reactions. Otherwise it may do more harm than good.

Ill success has followed all attempts to treat patients or to immunize with antitoxic serums drawn from animals "immunized" by injections of exotoxins and endotoxins of the tubercle bacillus, because these are unable to immunize against the living tubercle bacillus. Tuberculin contains, besides exotoxins and endotoxins, certain of the proteid elements of the tubercule bacillus. The fact that tuberculin produces effects closely similar to those produced by the living tubercle bacillus renders it at once a powerful ally when rightly used and a dangerous enemy when misused.

There are two great difficulties in the way of the general use of tuberculin treatment:

1. The difficulty of making sure that the diseased tissue is completely isolated.

2. The danger of overstimulation of the tissues.

And three main considerations to be decided when we are doubtful as to whether we should use tuberculin:

1. Are the tissues well nourished and the functions well maintained?

2. Are bacilli already present and accessible in sufficient numbers to provoke therapeutic reaction of the organism?

3. Is it safe to induce any lytic action on these bacilli in the present condition of the patient?

AMINO-ACIDS AND SUGARS IN RECTAL FEEDING.

SHORT and BYWATERS in the *British Medical Journal* of June 28, 1913, contribute an important paper on the subject. They assert the older observations on the absorption of foodstuffs from rectal enemata, based on the analysis of rectal "washouts," are unreliable.

The daily output of nitrogen in the urine of patients given nutrient enemata of milk or eggs peptonized for twenty or thirty minutes demonstrates that almost no nitrogenous matter is absorbed.

Modern physiological opinion holds that proteins are absorbed principally as amino-acids. The failure of the rectum to absorb ordinary nutrient enemata is largely due to the fact that peptones are given instead of amino-acids.

Chemically prepared amino-acids, or milk pancreatized for twenty-four hours so that amino-acids are separated, allows of a much better absorption of nitrogenous foodstuffs from the rectum, as demonstrated in five cases by the high nitrogen output in the urine.

The low output of ammonia nitrogen shows that this high output was not due to the absorption of putrefactive bodies. The rectal washings were not offensive.

Dextrose is much better absorbed than lactose, and relieves the acidosis of starvation.

Fat is not well absorbed. Scarcely any

of the fat of ordinary milk enemata is retained.

The best nutrient enema consists of milk pancreatized for twenty-four hours with 5 per cent pure dextrose.

AMEBIC DYSENTERY OF THREE AND A HALF YEARS' DURATION RAPIDLY CURED BY EMETINE HYDROCHLORIDE.

VERTEUIL, in the *Lancet* of June 28, 1913, thinks the following case is of interest as showing the rapid, nay immediate, effect of emetine in a severe chronic case of amebic dysentery:

The patient, a Frenchman, aged forty-four, first came to consult Verteuil on May 5, 1913. He gave the following history: In October, 1909, he left France for Panama, where he was to represent an important French firm. Previous to this he had always enjoyed excellent health, and was a strong, powerfully built man. Two months after his arrival in Panama he suffered from a sharp attack of dysentery with passage of mucus and bloody stools. From January 1 to April, 1910, he was constantly ill, suffering from fever and diarrhea. Besides various other drugs he was dosed with quinine. As he was rapidly going downhill he was advised by Dr. Preciado, of the Panama Presidency, to leave immediately for France. During the last few months of his stay in Panama he had lost thirty pounds in weight. Immediately on his arrival in Paris (April 21) he was operated on by Dr. Launay for a huge liver abscess. Three months after this operation he felt fairly well. This period of comparative health was, however, of short duration, for as soon as he attempted to return to a normal diet he had a recurrence of his dysenteric symptoms, and had to confine himself to a strict milk diet. During the following two and a half years he had six severe subacute attacks. These attacks would last for several weeks. Two of them were followed by liver abscess, for which he underwent two further operations.

In April, 1913, the patient arrived in Vancouver. Shortly after his arrival here he had a subacute attack, and it was for this he came to consult Verteuil. He had an urgent and constant desire to go to stool; he was passing from 20 to 30 stools daily, the majority of which consisted of only a little mucus and blood, accompanied by a good deal of griping and tenesmus. There was pain and tenderness over the region of the colon. He had a slight evening rise of temperature. He also suffered from external hemorrhoids, which had apparently been caused by the constant straining at stool. The patient appeared a complete nervous and physical wreck; he was thin and emaciated, with a muddy, icteric-looking complexion, prominent cheek-bones, with sunken eyeballs. The marvelous results first obtained and published by Leonard Rogers, and subsequently by others, with emetine made Verteuil anxious to try it. Five days, however, elapsed before he could obtain a supply of the drug. Late in the evening of May 10 the patient received his first injection, consisting of 1/3 grain of emetine hydrochloride dissolved in saline solution and enclosed in a glass ampoule. On the following day at noon he received a second injection. During the night of the 11th he had no call to stool; previously he had had to get up seven or eight times during the night. On the 12th, thirty-six hours after the first injection, he received a third injection, and from that date there was a complete disappearance of all dysenteric symptoms. That day he had but one stool, which was quite normal in appearance. He subsequently received seven more injections as a matter of precaution. During the time he was receiving the emetine injections no other drug or treatment was used. The injection of the drug did not cause the slightest unpleasant sign or symptom.

It was barely three weeks since the patient received his first injection that the mental and physical change became remarkable. As the patient graphically states, "it was like passing suddenly from Hades to Olympus." He is gradually resuming a normal diet. In fact, a week after he began the injections he could not resist the temp-

tation and consumed a large steak. This did not cause the slightest inconvenience, though previously such a dietary indiscretion would have been followed by the most dire results.

It is too early to speak of a permanent cure in the case. The results obtained have, however, appeared to Verteuil to be so extraordinarily rapid that he has not hesitated to describe the case in some detail. We have few specific drugs in medicine. The addition of a new one is certainly an epoch-marking discovery. Emetine seems to be as potent a specific in amebic dysentery as quinine is in malaria or salvarsan in syphilis and yaws. When we consider the dangers and fatal complications of this malady, as well as the years of misery and suffering which on account of its chronicity and liability to recurrence it often entails, Major Leonard Rogers's great discovery must occupy a foremost place in the medical achievements of the present century.

WHEN AND HOW TO USE NITROGLYCERIN.

CORNWALL in the *Journal of the American Medical Association* of July 12, 1913, reiterates and emphasizes the following points:

The general indications for the use of nitroglycerin are (1) to relieve symptoms of localized arteriosclerosis or arterial spasm in vitally important regions of the body, and, when there is pain due to contracted or diseased arteries, in other regions; (2) to reduce general high blood-pressure in selected cases, if its continuance threatens accidents to the cardiovascular apparatus; and (3) to clear the diagnosis.

The chief contraindications to the use of nitroglycerin are (1) low or relatively low blood-pressure; (2) advanced chronic nephritis with very high blood-pressure and toxemic conditions producing high blood-pressure, as a rule; and (3) the presence of an idiosyncrasy in regard to its action.

Nitroglycerin should never be used for the primary purpose of a heart stimulant.

Nitroglycerin given under the tongue produces almost as prompt an effect as when injected under the skin.

Nitroglycerin, if given too long or in too large doses, can produce injurious effects, which, however, usually pass away, at least apparently, when it is discontinued.

PHYLACOGEN TREATMENT OF PUSTULANT ECZEMA AND OTHER CONDITIONS.

ALICE JOHNSON in the *Lancet* of June 21, 1913, suggests that the results of phylacogen treatment in the following four cases may be of interest:

1. A girl aged eleven. Pustulant eczema of head of three years' duration following an *x*-ray treatment for ringworm. The eczema resisting all ordinary treatment, she was sent to a skin hospital, with no appreciable improvement. On May 16 she was given 1 Cc. mixed phylacogen, no reaction resulting. On May 19 pustules were drying up, and the next day 2 Cc. mixed phylacogen were given without any reaction. On May 22, 4 Cc. were given, causing a good deal of malaise, and temperature rose to 101.6° F., falling to normal on May 24, when only three pustules were left. On May 26, 6 Cc. of mixed phylacogen were given; no malaise; temperature rising to 100.4° and falling to normal next day, when the pustules had disappeared, leaving some scaliness of the scalp, which, being treated with thyroid extract internally and boiled oil externally, cleared up in a few days, and the child was discharged cured.

2. A boy aged eight. Pustulant eczema of head of four years' duration, the result of *x*-ray treatment for ringworm. All methods failing, on April 19 0.5 Cc. mixed phylacogen was given; temperature rose to 101°, and the child had rather a severe rigor; next day the temperature was normal and the boy quite himself. April 21, 0.5 Cc. was again given; there was no rigor; a slight malaise; temperature rose to 99.8°, falling to normal next day, and the pustules were found to be drier. On April 23, 1 Cc. given; temperature rose to 99.4°; no

malaise; next day a few fresh pustules appeared. April 26: Pustules were drying up, and 2 Cc. were given; temperature rose to 100.8°; severe rigor; pulse irregular; temperature fell next day to normal; eczema rather worse. April 28: 4 Cc. given; temperature rose to 103.4°; no rigor but some malaise; next day temperature fell to normal, and eczema had improved. April 30: 4 Cc. given; temperature rose to 100.2°; some malaise; temperature fell next day to normal. May 2: 4 Cc. given, no reaction; pustules quite dry, leaving crusts. May 7: 6 Cc. given; temperature rose to 100°; malaise, but no rigor; next day temperature fell to normal, and the head was found to be red and inflamed. On May 12, inflammation having subsided and the scabs having been removed, 4 Cc. were given, causing some malaise and temperature rising to 99.6°. May 17: A few more pustules formed, and as the head was still scaly, thyroid extract was started. May 22: 6 Cc. were given; temperature rose to 103.4°, falling next day to normal; malaise, but no rigor. May 26: Several new pustules, and 4 Cc. were given; temperature rose to 100.8°; slight malaise, but no rigor; no further inoculations were given, but the thyroid extract was increased to 10 grains per diem and the scalp treated with boiled oil. The child was discharged cured on June 12.

3. A girl aged twelve. Pustulant eczema of head of nine months' duration following *x*-ray treatment for ringworm. On April 19, 0.5 Cc. of mixed phylacogen was given; no reaction. April 21, 1 Cc. was given; no reaction. April 23: 2 Cc. were given; no reaction. April 26: Pustules clearing up; 4 Cc. given; child complained of pain at the site of inoculation; temperature rose to 99.4°; no other reaction. April 30: 8 Cc. given; temperature rose to 99°; slight rigor; much malaise; next evening the child was quite herself. May 2: 8 Cc. were again given; temperature rose to 99°; no malaise. Child discharged cured on May 3.

4. A girl aged twelve had pustulant eczema of head of twelve months' duration following *x*-ray treatment. May 2: 1 Cc. of mixed phylacogen; temperature rose to 102°; no rigor or malaise. May 5: Pustules drying up; 2 Cc. given; temperature rose to 99°; no malaise. May 7: 4 Cc. given; temperatures rose to 101.2°; slight rigor and malaise. May 9: Pustules quite dried up; 4 Cc. given; temperature rose to 102°; slight malaise. May 12: 4 Cc. given; temperature rose to 100.2°; no malaise. May 17: Pustules disappeared; head dry and scaly; thyroid extract commenced. May 22: 6 Cc. given; temperature rose to 104°; child very restless, but temperature fell to normal next day. May 26: 4 Cc. given; temperature rose to 102°; no malaise. May 29: Child discharged cured.

Mixed phylacogen was also found useful in a persistent case of impetigo of face in a child three years of age. The dose was increased from 0.5 to 4 C.c. The first dose caused a slight rigor, which soon passed away, and the temperature rose to 103°. Two further doses of 4 C.c. given on alternate days caused no reaction, and the child was discharged cured.

In another case of a boy of five a suppurating scalp wound which had resisted every other treatment was cured with four inoculations of mixed phylacogen. In a case of ulcerative stomatitis in a boy of six four inoculations cured him. In two cases of vaginal discharge of gonorrheal origin in children aged three and five the gonorrheal phylacogen was given, with no success.

RESULTS OBTAINED WITH SENSITIZED VACCINE IN A SERIES OF CASES OF ACUTE BACTERIAL INFECTION.

GORDON in the *Proceedings of the Royal Society of Medicine* for June, 1913, concludes an article by this question: What, then, is the value of this form of specific treatment as judged by its effect on the cases described?

He thinks that this question can best be answered by considering the series of cases, nineteen in number, in which the infecting agent was the streptococcus pyogenes. In none of these nor in any of the other cases was there any evidence to show that the

sensitized vaccine had a harmful effect. In order to estimate its clinical value he first of all takes the cases in which it had no effect at all. In seven out of the nineteen cases the vaccine produced no apparent change. Of these seven cases five died. Of the fatal five, two were in an advanced stage of septicemia when the treatment was first applied. After death, one of these was found to show endocarditis, the other meningitis. All of the three remaining fatal cases were instances of puerperal septicemia; and it may be noted that in all of them the pleura became infected, in two of them the general peritoneal cavity as well. There remain two cases of apparently localized streptococcal infection that recovered, but appeared to derive no benefit from the sensitized vaccine. So much for the cases in which the treatment was without effect. The remaining twelve cases all showed a great improvement after administration of the vaccine. At least six of these patients were in an extremely serious condition clinically when this form of immunization was begun. In all the ordinary medical and surgical treatment had failed to cure. Three of them had streptococci in their bloodstream. The sensitized vaccine was given, the general and local condition improved, the temperature improved, and the patient began to get well. In three of these cases antistreptococcus serum had been given, but without effect. In two of them also autogenous ordinary vaccine had been tried, but with no benefit.

As regards infections with bacteria other than the streptococcus pyogenes, his results are as yet too few to speak with confidence as to the relative value of the method. He has tried sensitized autogenous vaccine in two cases of ulcerative endocarditis without the slightest effect. Both were advanced cases, however, one showing 80 and the other 300 to 400 colonies of streptococcus salivarius per cubic centimeter of their blood.

As regards infection by the penumococcus, again, his results are as yet too few for drawing conclusions. Dr. Hamill has made up quantities of sensitized pneumococcus vaccines, however. Trial is being made of the method in cases of pneumonia by Dr. Tooth and Dr. Horton-Smith Hartley. Two cases of bronchopneumonia, due to the pneumococcus in children, appeared to derive benefit; but in some others no effect was seen. Besides the case mentioned, two cases of acute pneumococcal bronchitis in middle-aged men rapidly cleared up after administration of three successive doses of shock-sensitized pneumococcus vaccine. Gordon also awaits more material before concluding as to the merits of the treatment with bacillus coli infections. The results so far have been encouraging. It has been applied in several severe cases of opened appendix abscess (that threatened to develop general peritonitis) with certainly no harm, and apparently with good localizing effect; but this effect is difficult to prove from the temperature chart, which has simply remained at the normal level after the operation.

Gordon has been disappointed in the use of sensitized staphylococcus vaccine, as he has been unable hitherto to obtain a serum that properly sensitizes the staphylococcus pyogenes. No doubt this difficulty will be overcome.

He has endeavored to make a trial of sensitized tubercle bacilli (S. B. E.), but the preparation on the market which he made use of had evidently become desensitized, and as half the minimal dose recommended produced somewhat of a reaction, he did not proceed with it.

Gordon concludes that the method of Besredka has the conspicuous merit of producing immunity in animals rapidly, without discomfort, and without producing any preliminary diminution of resistance.

The experience he describes with cases suffering from acute bacterial infection go to show that where there is latent power available in the general resistance of the patient, the method has a similar effect on man under these circumstances. In some instances, moreover, this dormant power of the specific resistance may be awakened by sensitized vaccine even at a comparatively late stage in the attack. In cases in which

the treatment did no good there was no evidence to show that it did the slightest harm.

The method should have a great future prophylactically in the face of epidemics. It seems possible that sensitized vaccine may also be useful prophylactically in hospitals—*e.g.*, by this means the resistance of the patient might be raised to bacillus coli, streptococcus pyogenes, or the pneumococcus before operations on the alimentary tract or other infected area. Similarly, the method is open to the physician for the purpose of preventing secondary infections. Further, a prophylactic dose of sensitized vaccine might be given in cases of difficult labor.

Finally, Gordon submits that in cases already infected the evidence here brought forward goes to show that in a proportion of instances it is possible by this method to materially promote the patient's recovery. By administering a sensitized vaccine to these patients we appear to bring into action available reserves in that complex and still incompletely defined entity, the patient's specific resistance.

INTERNAL HEMORRHAGES: CAN WE CONTROL THEM?

Asking these questions BILLINGS in the *Journal of the American Medical Association* of July 26, 1913, answers by the statement that in the treatment of any internal hemorrhage an endeavor should be made to excite thrombus formation in the wounded vessel. The first principle to apply is rest, both mental and physical. Excitement of the patient due to the sight of blood must be overcome by moral support; reassurance of recovery, firmness, a calm demeanor, and a quick and methodical procedure on the part of the physician.

Opium is the drug to be used at once, in the form of morphine sulphate, hypodermically. It produces mental calm and physical quiet. The dose should be sufficient to produce both mental and physical calm. With proper consideration of the patient's age, mental state, and physical condition, the dose should be repeated to produce and hold the desired result. Absolute physical quiet should be maintained from twenty-four to forty-eight hours in severe hemorrhages in pulmonary tuberculosis, typhoid ulcer of stomach, etc. Food is not necessary, if taking it requires an effort. Thirst may be controlled by giving small quantities of water, in all forms of internal hemorrhage, except in hemoptysis, and in that condition normal sodium chloride or calcium chloride solutions may be injected into the rectum in the amount of 250 to 500 C.c. every four or five hours. An ice-bag or, better still, an ice-coil may be placed over the surface of the organ from which the hemorrhage has its sources. It is maintained by good therapeutists that cold so applied penetrates the tissues to a considerable depth. Probably cold as applied has a good moral effect on the patient. It probably does no harm if rationally applied and the patient is not chilled by it.

Most hemorrhages, if controllable, will cease without further treatment. If hemorrhage continues coagulation time may be roughly and yet quickly estimated by aspirating blood from a needle-prick of the ear or finger into a capillary glass tube into which is run a horsehair. The time of coagulation may be noted by drawing the hair partly out of the tube at intervals. If no other means can be used a drop of blood on a clean sheet of white paper may be watched until the approximate time of coagulation is noted. If coagulation time is prolonged over four or five minutes, one may use measures which are known to improve the coagulation time of the blood. The calcium of the blood is one of the factors which promotes coagulation and therefore thrombus formation. In all hemorrhages except gastrorrhagia, it may be given by the mouth in the form of the chloride, phosphate, lactophosphate, or lactate in the dose of 1 gm. every two to four hours. When necessary it may be given in solution per rectum.

If coagulation time is delayed because of the absence of a ferment in the patient's blood, it may be supplied by the intravenous or hypodermic use of normal human or nor-

mal horse-serum, or even of diphtheria antitoxin horse-serum. From 10 to 30 Cc. or even a larger amount may be injected at once and repeated if necessary.

No mention has been made of stypticin and the astringents to aid in producing thrombus formation. Billings has no confidence that such drugs are of any use whatever in internal hemorrhage. Drugs which are used for the purpose of constricting the blood-vessels are also useless. Ergot is used and more recently epinephrin has been employed hypodermically to narrow the caliber of the bleeding artery. All such drugs are likely to do more harm than good. Such drugs increase blood-pressure by stimulating the heart and by causing vasoconstriction. This is quite likely to expel the thrombus and therefore to aggravate the condition.

For the same reason intravenous transfusion or a hypodermoclysis of sodium chloride or calcium chloride should not be used to check the hemorrhage. Such transfusions may be used in cases of proximate exsanguination only, and then for the purpose of supplying the patient with a circulating medium.

The irrational use of stimulants like strychnine, camphor, and ammonia, and of heart tonics like digitalis, may be harmful. These drugs should never be used to control the hemorrhage and should be employed only to counteract dangerous collapse, the result of hemorrhage.

In some forms of hemorrhage additional measures may be life-saving. In hemoptysis due to chronic ulcer of the stomach, hemorrhage may not cease so long as the stomach is distended with blood and other contents. Lavage with normal salt solution until the stomach is empty is safe and often effective. When the stomach is empty a large dose of bismuth subnitrate may be used with benefit. Bismuth is much more efficient here than any form of iron or other so-called styptic. In gastrorrhagia the stomach must have absolute rest until the bleeding is controlled. The patient must not be permitted to take anything whatever in the form of food, drink, or ice.

In typhoid, intestinal hemorrhage is especially dangerous because the patient is seriously ill and perforation of the bowel occurs in twenty per cent of the hemorrhages. Here absolute rest is essential. The patient should not be moved to use a bedpan. The bowels should be permitted to move in a folded sheet. Fortunately the typhoid patient may be given liquids by mouth. Here there may be the more necessary use of stimulants, heart tonics, etc., to combat the asthenia due to the disease and aggravated by the hemorrhage.

It is the opinion of Billings that internal hemorrhages are often irrationally and even harmfully treated. Too much is attempted with drugs and other measures, which not only do not control hemorrhage but probably do aggravate it.

Probably most internal hemorrhages would cease naturally before dangerous exsanguination occurs if the patient were kept quiet. If thrombus formation is delayed use measures which are known to hasten blood-coagulation in the form of calcium and normal human or normal horse-serum or even antitoxin horse-serum.

THERAPEUTIC POSSIBILITIES OF TRANSFUSION.

BERNHEIM, in the *Journal of the American Medical Association* of July 26, 1913, makes this report:

Dr. V. C. Vaughn, Jr., of Detroit, Mich., reported some ten months ago a case that needed immediate transfusion. The patient was difficult to operate on—a newborn babe. He proved that he could withdraw blood from the donor and by the proper use of saline solution mixed with blood inject it from a hypodermic syringe into the vein of the recipient before it clotted. Dr. Freund of Detroit devised the apparatus, which has two needles, two rubber tubes, going to two-way stop-cock. To this stop-cock is attached a glass tube, with a container for normal saline. One needle is thrust into the vein of the donor, the other into the vein of the recipient. He fills the syringe with 1 Cc. of saline solu-

tion. Then the stop-cock from the vein of the donor is opened, and he fills the syringe with blood. Then this cock is shut off and the other is opened, and he forces blood into the vein of the recipient. That requires no operation. One does not have to cut the skin. He has transfused 150 Cc. without detaching the needles. Any one can use the method. The blood does not clot.

THE TREATMENT OF INFANTILE DIARRHEA BY SALINE INJECTION.

DAY in the *Practitioner* of July, 1913, asserts that saline injections alone, without drugs, are capable of curing most cases of infantile diarrhea.

Quinton's marine plasma has no definite superiority over artificial saline of the same strength. Such hypertonic solutions are preferable to weaker (.75 per cent or less).

The administration of medicine is preferable to injections of saline as a routine treatment of infantile diarrhea.

Disregard of dietary instructions is the commonest cause of failure of out-patient treatment.

Injections are valuable in proportion as the loss of fluid—by vomiting and diarrhea—exceeds the intake. They should be given before actual symptoms of collapse arise.

HINTS TO SUBASSISTANT SURGEONS AND OTHERS ON THE ADMINISTRATION OF CHLOROFORM.

The *Indian Medical Gazette* for July, 1913, contains an article by HIGHAM on this topic. His rules are as follows:

1. First and foremost, get rid of any idea that the administration of chloroform is an easy task or one that can be undertaken lightly or without thought and attention. Do not imagine because you will usually have present in the theatre a greater authority on medical and surgical matters than yourself, that you can afford to take your duties in a casual spirit and leave any difficulties that may arise to be straightened out by your surgeon. Consider yourself as rather absolutely responsible for the administration of the chloroform and give this your whole attention. Do not let it wander for a second. You will be tempted to watch the progress of the operation, but you cannot afford to do this. Every administration presents fresh features—no two are alike. You cannot tell what may happen, and the only way you can hope to be successful is to think of nothing but your own work; watch your patient closely the whole time Collect all the information that is available from the state of the breathing, the color of the lips, the pupils, the pulse, etc., to guide you as to your patient's condition; do not speak to any one in the theater and do not allow any one to speak to you on any topic that may distract your attention from your patient for a single moment from the time that he comes into your charge until he leaves the theater. The surgeon has need of all his attention in performing his operation, and it will jeopardize the patient's welfare, which is the first consideration for all concerned, if he has at the same time to think of the anesthetist. If one really gets into difficulties through no fault of his own, he will not begrudge any assistance, but this is a very different thing from expecting him to help out when matters go wrong as a result of one's carelessness or want of attention.

2. Do not omit to examine the heart before doing anything else. If you find an organic lesion tell the surgeon. If the operation is not essential for the life of the patient he may abandon it. If the operation is proceded with, one will have to use even greater care than usual in administering the anesthetic.

3. Do not forget to ask your patient if he has any false teeth. It is not uncommon for better class patients to possess them, but they should invariably be removed before starting an anesthetic. If they get displaced by chance and pass into the pharynx or larynx this very dangerous accident will be wholly one's responsibility.

2. Never start giving an anesthetic unaided. If, as frequently happens, the patient should struggle in the excitive stage of the anesthetic he may do damage to himself

or you—*e.g.*, he may fall off the table. He will almost certainly regain consciousness, and your position will be most undignified. Have two assistants, one to stand on each side of the patient, each ready to seize the arm and leg of the patient on his side when necessary. Tell them not to touch the patient so long as he is quiet, but to hold themselves in readiness. They should not allow their attention to wander, but remain alert watching for a signal from the patient or from you. Should they lay hands on the patient while he is still motionless, he will probably try to free himself from their grasp, and thus struggling will be induced when otherwise it might have been avoided. Furthermore, when their assistance is needed they should limit their exertions to keeping the patient from embarrassing one and should not aim at keeping the limbs, and more particularly the arms, absolutely still. The more tightly a patient is held, the more violently he will struggle. The use of undue force is to be deprecated in any case. Remember also that persons recovering from an anesthetic sometimes have erotic dreams, *e.g.*, female patients may dream that one has been behaving in an improper manner towards them, and this impression may remain fixed in their minds even when consciousness is regained. In the case of female patients, then, it is more than ever necessary to have some one present during an anesthetic, and for this and for many other reasons which are obvious it is desirable that where female patients are concerned one of your assistants should be a woman.

5. If you use a mask with a metal frame this should be boiled between each administration and, of course, a fresh piece of lint employed. When pneumonia occurs after operations, the cause is generally infection from a dirty mask, and in any case the use of a frame even, probably soiled with vomit, etc., is a revolting proceeding and quite inadmissible.

6. Always have tongue forceps ready for use, for you never know when the tongue may fall back into the pharynx and threaten suffocation. But as with all the other machinery of a surgical operation, do not make a display of it before your patient. This will alarm him unnecessarily. The same applies to a hypodermic syringe, which should be kept aside, handy, sterilized and ready for use, also liquor strychninæ, brandy, and ether for injection if necessary.

7. Wash your hands before giving an anesthetic, first, because it is revolting for the patient to have your unwashed hands covering his face; and secondly, because you are going to finger his cornea later on, and you may infect his conjunctival sac if your hands are not quite clean.

8. Before the patient is fully anesthetized and handed over to the surgeon, you must consider yourself as in command of the theater and every one in it. Do not allow any loud talking or noisy preparations for the operation to occur which might be distressing to your patient while he is still conscious. When space and other considerations allow of it, patients are not taken into the operating theater until they are under the influence of the chloroform, but are anesthetized in a special room and wheeled into the theater when they have become unconscious of their surroundings. Where you have to use the theater itself for this purpose, see that by silence, and the concealment as far as possible of the machinery of operations, the perfection of a separate anesthetizing room is imitated as closely as can be done. This refers in even greater degree, of course, to the removal of any blood, etc., remaining from a previous operation before the admission of another and conscious patient.

Above all do not allow any one to touch the area of operation before the patient is well under the influence of chloroform. Remember that consciousness is not lost immediately a mask with a few drops of chloroform on it is placed over the patient's face; on the contrary, it takes a considerable time, varying of course with different patients and anesthetists. One should not allow himself to be hurried in giving his consent to the removal of bandages, washing up the skin area, etc., before he is certain that his patient is fully anesthetized. First, the patient may feel this manipulation, even

though in a dull way, and both at the time and on recollection afterward may imagine that the operation was commenced before he was properly under the anesthetic, which will be distressing to him and harmful to one's reputation. If any one not under orders proceeds to violate this rule, tell the surgeon that the patient is not ready to be washed up, etc.; then at least one's duty will have been done and the after responsibility will be the surgeon's. In any case it is useless to start removing bandages, etc., if there is a possibility of struggling on the part of the patient and consequent soiling of the operation area by contact with assistants' hands, non-sterilized clothing, etc.

Do not allow drops of chloroform to fall on the patient's skin, and still less in the eyes. Chloroform is an irritant and may produce blistering of the skin, and this should be avoided.

Do not expect the patient to inhale a stronger vapor of chloroform to start with than you would be willing to take yourself; therefore do not put the mask on his face and pour on chloroform, but rather sprinkle chloroform on the mask before applying it, and then, having applied it to your own face to see that the vapor is not too concentrated to be inhaled without discomfort, transfer it to your patient's face. This will also inspire him with confidence.

After beginning in this way, make the patient's breathing a guide to the further application of chloroform. Explain to him that you wish him to breathe gently and deeply as if preparing for sleep, and do not give him more chloroform than he can inhale without discomfort. If he shows any signs of distress at any time, remove the mask to a little distance or even take it off altogether for a moment, and then proceed again more gently. As his senses begin to get dulled you will be able to increase the amount, but never do so to the extent of inhibiting respiration. This does not mean that one must take half an hour to get his patient under. On the contrary, with practice it will be found that by obeying this rule of never giving more chloroform than can be inhaled one will get his patient under in actually shorter time. Children have to be treated somewhat differently, as they frequently hold their breath, however gradually one may apply the chloroform. The same tactics should, however, be followed as far as possible. Children may often be induced to take satisfactory breaths by telling them to blow away the smell. To blow hard they must inhale deeply. Therefore encourage them to blow harder and harder. Usually without further difficulty they will rapidly lose consciousness. Use discretion about dropping on much chloroform if the inspirations continue to be very deep.

When the regular breathing of the patient suggests that he is beginning to come under the influence of the chloroform, his corneal reflex may be tried and the condition of the pupil also ascertained. Avoid any unnecessary manipulation of the cornea, and when you must touch it take care that you do it very gently and lightly. If the patient resists the opening of his lids, this is, of course, a sufficient indication that the reflex is present and the cornea need not be interfered with at all. When once it has been ascertained that the reflex is absent it will not as a rule be necessary to finger the cornea very frequently during the rest of the administration, the guides being rather the regularity of respiration, the color of the lips, and the condition of the pupil. The superficial layer of the cornea is a very delicate membrane, and it would be quite easy to abrade it by oft-repeated or careless manipulation, so this should be avoided. Furthermore, as a result of frequent fingering the cornea begins to lose its sensitiveness and thus ceases to be a reliable indication of the degree of general anesthesia. If you find that the corneal reflex has been lost in one eye, and particularly if you have had occasion to make rather frequent tests in that eye, try the other eye, and only if it is absent on that side also conclude that the patient has really lost his reflex.

Aim at maintaining quiet breathing. If there is a lot of stertor and noise the administration will not go smoothly. Try the effect of altering the position of the head, swab out any mucus from the fauces, draw

forward the tongue with tongue forceps, or keep it forward by maintaining a forward pressure upon the angle of the jaw. Do not keep tongue forceps applied for a long time, or the patient will complain of pain in it afterward, or damage to the tissues may even be caused. Noisy respiration means impeded air entry and therefore impeded chloroform entry; as a result your patient may become partially asphyxiated or may come round from the anesthetic.

A dilated pupil which does not react to light and which is accompanied by absence of the corneal reflex is a danger-signal—remove the mask at once and give no more chloroform until the pupil has contracted once more. During this time watch the patient's breathing carefully and be ready to start artificial respiration.

A dilated pupil with the corneal reflex present usually means that the patient is about to vomit. It is an indication to press the chloroform, even if vomiting is occurring, otherwise the patient will come round.

In all operations upon children have an assistant ready to restrain any movement the patient may make at the first cut of the knife. It is a good plan to take this precaution in operations on adults also, for if the patient's hands get in the way of the surgeon, disarrange the towels, etc., the administration will be discredited. Another way of avoiding such an accident is to push the chloroform to the stage when the pupil is beginning to dilate. The patient will then make no movement, but his condition is somewhat critical, and unless great care is taken one may overstep the boundaries of safety and find his respiration stopping, which is a greater calamity than the causing of a little inconvenience to the surgeon by movements of the patient. If one waits only until the corneal reflex is absent and the pupil is contracted before telling the surgeon he may begin, the patient will not move in the majority of cases, but it is well to be prepared for this contingency.

At the making of the incision and on certain other occasions, *e.g.*, the stretching of the sphincter ani, unless the patient is deeply under, his respirations will become deep and hurried. Care must then be taken that he does not inhale too much chloroform. Therefore diminish the quantity or even remove the mask and watch the pupil carefully for approaching dilatation.

In children the corneal reflex and, to some extent also at any rate as regards contraction, the size of the pupil is not a reliable guide to the patient's condition. In many cases he may be found with absent corneal reflex and small pupil, breathing regularly—*i.e.*, apparently adequately though not deeply under the influence of the anesthetic—but at the touch of the knife he struggles and begins to cry, showing that he is not under. If the pupil is really contracted—*i.e.*, if it is the size of "a pin's point"—he will be sufficiently under, but it is sometimes difficult to be certain that this stage has been reached. Children should therefore be pinched on the skin of an extremity, sharply, but not of course roughly, before the operation is commenced, when it will become evident if they are anesthetized or only sleeping. In addition to taking this precaution, an assistant should stand by, as recommended above, to avoid any inconvenience which might result from any movement which may be made. Children should not under ordinary circumstances be anesthetized to the point of commencing dilatation of the pupils. The best guides in children to the extent of anesthesia, if the patient does not flinch at the knife, which is of course a sign of a very light anesthesia, are the regularity and depth of the breathing and the color of the lips. If the respiration is sighing in type and the color of the lips bluish, the administration should be stopped until these symptoms disappear. Even in children beware of a dilated pupil. Unless one's patient is obviously only lightly anesthetized—*i.e.*, is flinching—do not regard a dilated pupil with equanimity.

If during the course of an anesthetic the respiration should stop, remove the mask at once. A towel wrung dry out of very hot water should be applied to the chest—if it is applied wet, blistering will result—and artificial respiration resorted to. Do

not repeat the motions of artificial respiration too frequently—seventeen times to the minute is the right speed. Dilatation of the sphincter ani and rhythmical traction upon the tongue held in tongue forceps will restart respiration in some cases. The circulation through the brain may be hastened, and at the same time a failing respiration stimulated, by lowering the patient's head if the construction of the operation table will allow of this, and in children the body may be raised above the level of the head by lifting it up by the feet. A failing respiration may sometimes be stimulated by dropping ether upon the mask instead of or along with chloroform for a short time.

For operations upon the respiratory passages do not press the chloroform to the extent of abolishing the coughing reflex, as there is danger of the aspiration of blood or discharges into the lungs, an accident which may result in death by asphyxia (drowning) or in septic bronchopneumonia. If, however, one does not let his patient lose his corneal reflex, he will retain also his coughing reflex. He will move and of course cough, but this cannot be avoided. He should not be allowed to so far recover as to regain sensation of pain.

If a patient begins to vomit, turn the head over to one side to allow free exit to the contents of the stomach and avoid their entrance into the lungs. Unless one wishes the patient to regain consciousness, continue the administration of the chloroform during the efforts at vomiting—indeed push the administration with a view to stopping the vomiting. The mask should be held where it will not be soiled by the vomit.

To recapitulate, bear in mind these guides:

(*a*) The corneal reflex should be absent except in operations on the air-passages.

(*b*) The pupil should be contracted. Always suspect a dilated pupil; it may be a harmless phenomenon, but it is usually a danger-signal. Do not regard it as unimportant unless it reacts definitely to light, and you have convinced yourself to your complete satisfaction from all the other data at your disposal that all is going well.

(*c*) The breathing should be regular and not sighing or very light. This is by far the most important guide that one possesses. Therefore watch the breathing carefully all the while. Keep your eye fixed on the front of the chest, and if at any time you are compelled momentarily to look away, keep your ears open to catch the breath sounds. Be anxious if you cannot see good regular movements of the chest walls and hear the entrance and exit of the air. On the other hand, do not permit loud and stertorous breathing if you can avoid it.

(*d*) The color of the lips and face: Note the normal color of your patient's lips before the administration is started; if it becomes dusky and bluish, take off the mask and look closely into this.

(*e*) The pulse should be counted at the commencement and any increase in frequency or diminution of volume noted. This can readily be done, as a rule, without disturbing the operation, by feeling the pulsations in the temporal artery, but in any case of doubt, one of the radial arteries is usually at one's disposal. If one is keeping constant observation upon the breathing, one can afford to pay less attention to the pulse, because as a rule the respiration begins to fall before the circulation in the case of an overdose of chloroform. Nevertheless the pulse should be felt and counted from time to time, and any signs of failure reported to the surgeon, to whom the knowledge of this fact may be of great value.

Examine one's patient again the last thing before he leaves the theater. He should have at least regained his corneal reflex before he is removed. So arrange the administration that this is the case. It is not desirable that the patient should go back to the ward, where probably he will receive no professional attention, still deeply anesthetized. It is better that he should come to the stage when he is retching and bringing up mucus, etc., in the theater rather than this should occur in the ward, where he will be away from supervision. If one is uncertain toward the conclusion

of an operation how much more the surgeon is proposing to do, ask him. He will usually state when no more anesthetic will be required, but if he omits to do so, ask him.

Remember that a part of the surgical operation which a patient dreads is the taking of the chloroform. This is the only part that he will remember afterward. If one has been sympathetic in his manner and has observed the recommendations given above for starting the administration, he will tell his friends afterward that there is nothing terrible in a surgical operation, and one's reputation as an anesthetist will be assured. But if his recollections are of being held down on the table, motionless and helpless in the vice-like grip of brutal assistants, while one systematically tried to suffocate him, one has failed in his duty to his patient and shamed his profession.

PITUITRIN IN PARTURITION.

In the *Indiana Medical Gazette* for July, 1913, an anonymous writer records the good effect of pituitrin in a case of decidual hydrorrhea that came under his observation. The patient was a primipara who had gone to the full term of pregnancy. She began with pains on about the 282d day which were intermittent, coming on every hour, each pain being of the same severity and duration and attended with the discharge of a watery fluid from the very start, to the extent of about six ounces at a time. The membranes were intact, and the os not dilated. The pains and discharge lasted for over forty-eight hours without any advance toward parturition. With a view to facilitate and hasten the labor ½ Cc. of pituitrin, representing 0.1 gm. of the dry substance, was injected hypodermically. The result was immediate, but opposite to expectation. All pains and discharge stopped and the patient slept well for over six hours. Four days later she had her regular labor unassociated with the discharge, and was delivered safely and naturally of a live male baby after passing the regular stages of labor.

Another patient whose os had fully dilated and whose membranes had ruptured eight hours before she was seen and whose pains had completely stopped, all this time making no progress, was injected with the same dose of pituitrin, with the result that the pains restarted within forty minutes, ending in the birth of a still-born child in an hour, though the fetal heart sounds were audible before the injection.

THE ABUSE OF PITUITRIN IN OBSTETRICS.

In the *St. Paul Medical Journal* for August, 1913, LITZENBERG reaches these views:

Pituitrin is a valuable stimulant to uterine contraction.

It will not usually produce an abortion.

It will sometimes induce premature labor, but is not reliable for that purpose.

The results in the first stage of labor are not satisfactory unless the cervix is effaced and considerably dilated.

With an undilated cervix it is not to be recommended.

It is a most efficacious drug during the second stage of labor.

It is of some value during the third stage, but its efficacy is much less certain than in the second stage.

Postpartum it is also of some value, but not better than ergot.

Litzenberg believes its proven value is limited to the second stage of labor, and that our knowledge is still limited and its use not without danger, so it must be used with caution.

THE BROMIDE QUESTION EXPERIMENTALLY CONSIDERED.

KRUSE, in the *Journal of the American Medical Association* of July 26, 1913, reports a research on the bromides. He believes that the inorganic bromides are relatively indifferent to such organs as the heart of the cold-blooded vertebrates. On the hearts of warm-blooded animals the bromides are in the long run sharply depressant whether they be measured by rate or by amplitude. If the bromides are com-

bined with bases in strictly physiologically balanced solutions they are relatively non-toxic, especially to cardiac muscle. On the other hand, if the salts are used without reference to the physiologic balance of bases it often happens that reactions of the heart are relatively misleading, owing not to the primary toxicity of the bromide anion but to the influence of the base or cation. This is particularly true of potassium bromide. Looking over the literature we cannot escape the conclusion that many of the so-called bromide therapeutic effects are distinctly chargeable to the base with which the bromide has been combined.

THE NATURE AND TREATMENT OF BRONCHIAL ASTHMA.

BABCOCK, in the *Journal of the Michigan State Medical Society* for August, 1913, says that a true conception of bronchial asthma makes it incumbent on the physician as the preliminary step in management to search diligently for the focus of infection, that this may be eradicated by operative interference if necessary. Of course, in cases sensitized to animal or plant emanations, etc., the exciting agent cannot be killed off or removed and the individual must avoid exposure to the cause, and if this be not possible palliative measures must suffice. But in most if not all instances of the malady some focus exists within the person's own organism from which protein is absorbed. Careful inquiry into the anamnesis will usually direct attention to the probable location of such focus. Thus if, as in cases known to the author, it be discovered that the asthma developed after a severe coryza with profuse purulent nasal discharge, there is strong likelihood of protein absorption from a maxillary sinus or the ethmoid cells. In the latter case it should be kept in mind that hyperplastic ethmoiditis does not show itself necessarily by discharge, but may reveal itself by polypi. In any such case medicinal or palliative measures are ineffectual, and only radical operative procedures can avail to prevent further anaphylaxis.

One should remember furthermore that asthma may result from chronic appendicitis, chronic cholecystitis, pyosalpinx, or diseases of any other structure giving rise to long-standing infection. In the great majority of instances, however, it is the disease of the upper respiratory tract that is responsible for the asthma. If chronic bronchitis becomes added and the air tubes contain purulent or mucopurulent secretions, they may furnish an additional focus from which the anaphylactic poison may be absorbed. Accordingly such chronic bronchial catarrh must be treated by suitable remedies or even a change of climate.

An enumeration of various expectorants would be unnecessary, but of them muriate of apomorphine in doses of a quarter or half a grain by mouth in syrup of hydriodic acid is often very efficient. These and even larger doses can be tolerated without producing nausea, as was pointed out by Murrell and the author many years ago. Aspidospermin one-half to one grain three or four times daily is often very beneficial, but a combination that has often done good service is the following:

Tr. lobelia, 20 Cc.; extract grindeliæ robustæ fl., 30 Cc.; syr. acidi hydriodici, q. s. ad 130 Cc. A teaspoonful in water three to four times daily.

Whatever means is employed to lessen or remove the chronic bronchial catarrh and associated emphysema is likely to prove only palliative at the best. The frequent recurrence of asthmatic paroxysms will keep up the pulmonary changes, and hence the spasms must be cut short or prevented if possible. A remedy that has grown into favor the past few years is adrenalin applied to the nostrils or thrown beneath the skin in 10- to 15-drop doses as soon as the asthma sets in. Relief in some cases is prompt and pronounced, while in others it may be necessary to add from a twelfth to a sixth of a grain of heroin to the adrenalin. Unfortunately, patients are likely to wear out the effect of these remedies, so to speak, and eventually may have to resort to them a number of times before their asthma is wholly relieved. Many other remedies are

efficacious in overcoming a seizure, as morphine hypodermically, inhalations of chloroform or ether, or resort to whisky in large doses. These all have their drawbacks as well as carry the danger of the formation of a drug habit. Pyridin, which is a volatile liquid, may be inhaled from a handkerchief and often affords prompt relief. But it is likely that the asthmatic will adopt in time some favorite asthma powder which gives him more satisfaction than anything the doctor may advise.

Whatever may be the remedy that is found efficacious its effect is but transient, and the sufferer is likely to go on for years unless permanently cured by change of residence or operation. The treatment of this affection has been and still will remain unsatisfactory so long as the exciting cause is not discovered and removed. It is for this reason that the author feels impelled to insist on the necessity of thorough investigation of the nasal passages and their accessory sinuses, since he believes that in a far greater proportion of cases than is realized the protein which brings about the anaphylactic symptoms is absorbed from some one of these cavities. In particular the rhinologist must leave no efforts undone to satisfy himself of the existence or not of hyperplastic ethmoiditis, since even without polypi or a purulent discharge it may exist and may afford the condition required for the production of anaphylaxis and bronchial asthma.

NON-SURGICAL TREATMENT OF CIRRHOSIS OF THE LIVER.

In the *Journal of the American Medical Association* of July 26, 1913, N. S. Davis asserts that patients suffering from cirrhosis of the liver with ascites and other evidence of serious hepatic disease should be regarded not as hopeless or as capable of help only by surgery.

Alcoholic beverages must be forbidden, not only during treatment but also after apparent recovery. It is well known that cirrhosis of the liver occurs rarely in those who do not use alcohol, and therefore that alcohol cannot be the immediate cause of the disease. Nevertheless, its baneful influence in producing cirrhosis is fully appreciated, and the occurrence of relapses in two cases after its use illustrates the need of forbidding the employment of alcoholic beverages.

Cases of recovery on a milk diet have been reported at intervals for a long time. When there is ascites and edema a restricted milk diet will as well as a "dry" diet help to cause an absorption and elimination of the fluid, and with much more comfort to patients. Six glasses of milk daily is not sufficient to maintain strength, but it will maintain life, and if a patient is at rest in bed will prevent much craving for food and drink. This has been his experience in all kinds of dropsies. The fact that it constitutes a diet almost free from salt is important.

Important, however, as the effect of a milk diet is in helping to rid patients of dropsy in cirrhosis of the liver, milk is more important because it is a bland food which, in the course of digestion, produces less irritating products than almost any other. Moreover, it is held by some that good results are due chiefly to the marked change in the bacterial flora in the intestines which an exclusive milk diet effects; and certainly no diet will more surely relieve the gastroenteritis which forms a part of all active cirrhoses of the liver.

As soon as improvement is evident, as shown by a feeling of greater well-being and diminution of ascites and general edema, the quantity of milk can be increased to eight glasses daily. Fruit can be permitted in moderation at almost any time. Davis makes it a practice, however, to give only milk at first, and when after some days the patient greatly craves a variety, he permits the addition of fruit and some time later a little of starches which require in their preparation a minimum of salt, such as corn-starch or sago pudding, blancmange, and later a little bread. When the general edema is gone and ascites is nearly gone he prescribes eggs with salt in milk or cooked in a custard or boiled or poached. When the dropsy is gone, and the patient is

in all ways improved, a general diet may gradually be resumed; but a milk diet or almost exclusively a milk diet must be maintained for about two months at least. These patients must be taught to eat abstemiously, therefore, and confine their diet to very simple kinds of food. They must remember that the liver never will be perfect, and that the gastrointestimal tract may be deranged again, and ascites and symptoms of toxemia characteristic of advanced cirrhosis may be produced.

It is essential that food be not allowed to accumulate in the intestines and there undergo chemical modifications by bacteria; therefore the bowels must be moved thoroughly and daily. When there is dropsy and it is desired to cause a copious elimination of liquid by the bowels, a purge is required. Elaterium is the choice of Davis both because it provokes large liquid stools and because it is reputed to promote the elimination of toxins. The first day it may be necessary to give ¼ grain two or three times. Thereafter from ¼ to 1/10 grain given at night is usually sufficient, and in many instances a single dose the first day is all that is needed. If elaterium is given at bedtime he finds that it rarely produces nausea or pain, but often patients are awakened before morning to evacuate the bowels. When there is no need of liquid stools, milder laxatives, such as cascara or aloes or combinations of these and phenolphthalein will answer.

When in cirrhosis of the liver there is ascites, and especially when there is anasarca, the pulse is quick and the heart is not strong and is sometimes dilated. The myocardium is affected and weakened by the toxins which are provocative of the symptoms of this stage of the disease. At necropsy when death is due to cirrhosis of the liver the myocardium is usually flabby, sometimes fatty, and often the heart is dilated. The functional power of the heart frequently is lessened by its displacement by fluid in the abdominal cavity, and also the circulation is interfered with by imperfect expansion of the lungs and movements of the diaphragm from the same cause. Usually blood-pressure is low; especially is this true in the later stages of the disease. Digitalis or other drugs of its group are useful as aids in eliminating the fluids accumulated in the tissues and in maintaining generally a better circulation. Usually about the time the ascites disappears or soon thereafter the heart becomes normal in rate. The relief of the toxemia and rest usually restore the strength of the heart, but in some cases, especially when patients are decidedly anemic, iron and strychnine are also useful.

As already explained, hexamethylenamin was given experimentally because it had been demonstrated that it was eliminable in the bile as well as in the urine, and probably acted as an antiseptic in the hepatic ducts and gall-bladder. If cirrhosis of the liver is due to infection of the liver it was thought to be the best antiseptic which would reach the organ and be eliminated with its secretions. The experiments of Burnam have taught us recently that hexamethylenamin is not decomposed so as to set free formaldehyde in the bile; but these experiments have not yet been confirmed, and much clinical experience seems to prove the utility of the drug in infections of the gall-bladder. Nevertheless, it is doubtful if it was essential to the improvement obtained in the cases which have been described. Rest, thorough elimination by the intestines, and a prolonged milk diet, followed by a slow, graduated change to a mixed diet, are undoubtedly the essentials of good treatment.

Such patients should be kept recumbent as long as they are on a decidedly insufficient or restricted diet. This is necessary to prevent undue loss of strength. Patients with the abdominal cavity full of fluid, with the lungs thereby compressed and the movements of the diaphragm impeded, often say they cannot lie down with comfort and prefer constantly to sit in a chair. If they are encouraged to stay in bed, however, at first bolstered up, usually the second day they find themselves more comfortable, and by the third day or sooner they can lie down almost or quite flat. In bed they sleep much better and are surer of perfect rest.

If a patient's abdominal cavity is distressingly full of fluid which is not quickly lessened by the treatment just outlined, Davis asserts he would not hesitate to withdraw it through a cannula, but would employ just as patiently the restricted milk diet and purgative both to prevent the reaccumulation of fluid and to change the bacterial content and fermentation within the intestines, and possibly the production thereby of harmful toxins.

THE USE OF PITUITRIN IN OPERATIVE AND SPONTANEOUS HEMORRHAGES OF THE RESPIRATORY PASSAGES.

CITELLI in the *Zeitschrift für Laryngologie, Rhinologie und ihre Grenzgebiete,* 1913, pp. 525 to 536, says that in view of the good therapeutic results that have been obtained with extracts or the active principles of various ductless glands, particularly the thyroid and suprarenal glands, attention has also been focused, for years, upon the utilization of the extract of the pituitary gland.

Marinesco, who essayed the treatment of acromegaly by means of the administration of an extract of the pituitary gland, observed a noticeable increase of diuresis among his patients. Such a marked diuretic action of that extract was also noted by Schaefer, Magnus, and Herring.

E. de Cyon and Liven were able to demonstrate that the extract of the pituitary gland intensifies the heart-beats while it reduces their frequency, at the same time increasing the blood-pressure, owing to a general contraction of the blood-vessels. In 1906 Dale pointed out, incidentally, that the extract of the pineal gland is capable of producing marked contractions of the uterus. Bell and Hick proved experimentally that this was the case and published data in detail. They showed, moreover, that the extract stimulates intestinal peristalsis.

Finally, not long ago, Alt, and subsequently Schaefer and Mackenzie, called attention to the fact that the extract of the pineal gland also possesses a galactagogue action.

Pharmacological observations concerning the actions of the extract of this gland soon led to therapeutic investigations that, on the whole, produced very satisfactory clinical results. On account of these the agent was recommended to practitioners: as a diurectic, as a galactagogue, in cases of intestinal atony and paresis, in osteomalacia, in Basedow's disease, obesity, paralysis agitans, pneumonia, typhus, diphtheria, as well as in various infectious diseases. Above all, however, many authors recommend it as a heart tonic and as a uterine tonic and styptic. The cases that were treated by means of this product number many hundreds, consequently the number of the publications pertaining to this agent is very large. They show conclusively that, in this instance, according to Hofbauer, we possess a sovereign remedy for the production of uterine contractions—that is to say, an agent that may render many a surgical procedure unnecessary on account of its long-continued action extending over many hours and even days.

These, on the whole, were the results that had already been published when Citelli began to take an interest in the subject. It seemed to him, however, as he sifted the literature pertaining to it, as though the evidence pointed not only to a thorough general stimulating effect of the extract upon the muscular fibers of the uterus, but also upon those of the blood-vessels. If this were true, one could expect that the new product would also prove serviceable in the resection of the lower turbinated bone, where the muscular coat of the vessels is especially developed. These operations are not infrequently followed by very troublesome hemorrhages.

A supply of pituitrin was placed at his disposal. Thereupon he put this product to a practical test in numerous cases, in his clinic as well as in his private practice. The results were so brilliant that they deserve consideration.

In order to remove or prevent the oper-

ative hemorrhages of the upper air-passages Citelli has employed pituitrin in the following cases for curative purposes:

Case 1.—A robust young man of thirty years, on whom he performed a turbinotomia inferior sinistra. Although, as usual, he had made local applications of a strong solution of adrenalin and cocaine prior to the operation, the retraction and decrease in size of the hypertrophied turbinate only took place to a limited extent. Even with the first application of the scissors there was a profuse hemorrhage, and this continued during the whole operation. Later he performed an anterior tamponade with gauze that had been saturated with a hemostatic fluid. Nevertheless and although the patient remained in the hospital and followed his directions minutely, the hemorrhage, drop by drop, continued from 8 A.M., the hour of the operation, until 5 o'clock in the afternoon. At that time he decided to make a subcutaneous injection of ½ Cc. of pituitrin. After ten to fifteen minutes the hemorrhage decreased materially and ceased entirely after a second injection of the same quantity of pituitrin about three-fourths of an hour later. There were no untoward after-effects.

This was the first case in which Citelli employed pituitrin, and the result was so surprising that it was even commented upon by the nurses.

Case 2.—A young man of twenty-two years. An anemic patient afflicted with purulent ethmoiditis with polypi, and polypoid degeneration of the middle turbinate, especially on the left side.

The extraction of the polypi produced a hemorrhage that, although not severe, was very unusual in operations of this kind and repeatedly obliged him to tampon the nasal cavity. When he one day attempted to remove the mucous membrane of the middle turbinate, which was degenerated, there was a very severe hemorrhage, which persisted despite a rather tight tamponade.

Thereupon Citelli made a subcutaneous injection of ½ Cc. of pituitrin into the arm. After a few minutes the bleeding ceased. Even after the removal of the tampon there was no further hemorrhage.

Case 3.—A girl of sixteen years with a diffuse hypertrophy of the lower turbinate. After local anesthesia with cocaine-adrenalin, that produced a noticeable retraction of the mucous membrane of the turbinate, he resected the left lower turbinate. No sooner had he severed the anterior half of the turbinate, inclusive of a part of the bone, with the scissors, when there was an abundant hemorrhage. This increased with a second cut of the scissors, with which he ended the operation. He did not introduce a tampon, but injected ½ Cc. of pituitrin subcutaneously, aften an abundant hemorrhage had persisted for fifteen minutes. After about ten minutes there was a material decrease in the hemorrhage, which finally only consisted of the periodical appearance of a few drops of blood. Even this remainder of the hemorrhage finally stopped after four to five hours.

He reports six similar cases.

For Preventive Purposes.—In view of the above experiments Citelli has made extensive use of pituitrin in his surgical cases and has obtained brilliant results. Since he never has experienced untoward after-effects, he deems it advisable to administer 1 Cc. of pituitrin at least fifteen minutes before the operation. If necessary, two, three, or four hours after the operation, a second subcutaneous or intramuscular injection can be made, and, in rare cases, even a third.

The preventive administration of pituitrin also has the advantage, which cannot be estimated too highly, that it reduces the hemorrhage during the operation. The patient suffers less loss of blood and the operation is quickly and easily performed. Citelli cites a number of cases illustrative of these facts.

After convincing himself that the resection of the lower turbinate, on one side, without tamponade, could be performed with a slight loss of blood by making a preventive injection of 1 Cc. of pituitrin, he began, experimentally, resecting both lower

turbinates in one sitting. Thus far he has operated upon eight patients, including a child four years of age, under chloroform narcosis, in this manner, with excellent results. During the operation there was but little hemorrhage. There was some oozing, and in four to eight hours this had ceased, so that the patient could be discharged in from one to two days.

In one case he made use of the unusual power of resistance of a patient, and not only resected both lower turbinates in one sitting, but also extracted the left middle turbinate, besides resecting a projecting spur of the septum. Here, too, he obtained an excellent result. Since there was a considerable oozing after the operation, he made a second injection of 1 Cc. of pituitrin. The oozing diminished very soon and stopped entirely within a few hours.

Citelli also employed the preventive injection of 1 Cc. of pituitrin in the cases of patients in whom he performed a submucous resection of the nasal septum under anesthetization by means of local applications of cocaine and adrenalin. In these instances the hemorrhage was also less pronounced than usual. It continued for some hours subsequently, but only in the form of a very limited oozing.

Finally the preventive hemostatic effect of the pituitrin served him well in the case of a patient upon whom he was obliged to operate on account of an acute purulent fronto-ethmoido-sphenoidal sinusitis. The same statement applies to two patients with a chronic purulent inflammation of the antrum of Highmore, one of which was operated according to the method of Luc, and the other according to that of Claoué. In these cases the unusually small amount of hemorrhage, during the operation, contributed greatly to the simplification of the procedure and the ease with which it was performed. There was also less postoperative hemorrhage. Moreover, the chloroform narcosis, for which all three patients had expressed a preference, was unattended by any untoward after-effects.

Spontaneous Hemorrhages that were Treated by Means of Pituitrin.—In view of the excellent results which Citelli had obtained in the operative hemorrhages of the air-passages, it appeared to him that he would be justified in expecting that the product would also be serviceable in the spontaneous hemorrhages of these organs. The experiments which he made in this direction in his clinic yielded such remarkable results that he as well as his assistants and many colleagues now make use of pituitrin in these conditions to a great extent and to their entire satisfaction.

Many cases that he does not enumerate on account of brevity conclusively demonstrate the remarkable effect of pituitrin in epistaxis. This agent enabled him to avoid the necessity of making several posterior tamponades. It is scarcely necessary to point out how pleasant this was for the patient. Moreover recovery takes place more rapidly than after the usual troublesome tamponade.

In order to accelerate hemostasis in all of these cases it is advisable to introduce a small pledget of cotton-batting, that may or may not be saturated in a hemostatic fluid, into the respective nasal cavities. This compresses the locus Kieselbachii, from which the hemorrhage generally proceeds. After the epistaxis ceases, it is best to cauterize the hemorrhagic zone.

Hemoptysis.—Citelli also tested pituitrin in cases of bronchorrhagia. The results which he obtained in two cases were excellent and in every way superior to those that we are accustomed to obtain with ergotin and similar drugs. Several colleagues, who used the agent at his suggestion, were also able to convince themselves of the superior action of the pituitrin.

Hemorrhagic Diathesis.—Pituitrin also proved to be very serviceable in hemorrhagic diatheses with severe bleeding from the nose and mouth.

All that he points out with reference to the effect of the extract of the pituitary gland on hemorrhages of the air-passages, and the way in which it operates, renders it probable that the agent will also prove

equally serviceable in the hemorrhages of other organs, such as the urinary and digestive tracts, etc. Several colleagues who used pituitrin in such cases at his suggestion have already expressed themselves very well satisfied with its therapeutic effects.

Finally he has made use of the graduated and protracted tonic action of pituitrin upon the heart of patients who had to be chloroformed on account of a severe operation, and who gave him anxiety either on account of a general debility or the presence of cardiac lesions. The injection of 1 Cc. of pituitrin before the operation insured an entirely satisfactory narcosis. Finally Citelli states that he wishes to point out that he has never experienced any untoward after-effects from the use of pituitrin.

THE EXPERIMENTAL THERAPY OF ASTHMA.

CLOETTA (*Archiv f. Exper. Path. u. Pharmak.*, vol. 75, p. 249) in writing on this subject says that the result of an attack of asthma is a decided increase in pulmonary respiration with a corresponding increase of effort to sustain normal breathing. This condition is due to bronchial spasms and not to changes in the elasticity of the lung tissues.

The tendency to dyspnea of the asthmatic patient may, therefore, be referred to (1) hyperactivity, important because it represents abnormal and uneconomical effort; (2) the increase in the total volume of air, which induces a marked linear dilatation of the pulmonary vesicles and consequently impedes circulation, the latter in turn producing a hyperactivity of the right ventricle; (3) a subjective sensory feeling caused by the continued enlargement of the thorax—*i.e.*, a pressing and dragging sensation.

It is hardly likely that this pulmonary condition affects the heart in the sense of limiting its functional power. A possible hypertrophy of the right ventricle in cases of protracted attacks may be referred to impeded circulation due to the linear dilatation of the pulmonary vesicles during the attack.

An injection of atropine and adrenalin will quickly correct this pathological condition.

CLINICAL EFFECTS OF "NATURAL" AND "SYNTHETIC" SODIUM SALICYLATE.

HEWLETT concludes, in the *Journal of the American Medical Association* of August 2, 1913, as a result of coöperative investigation as to the relative therapeutic value of sodium salicylate derived from natural sources and of sodium salicylate prepared by synthetic methods, that no essential difference exists between the two. This was demonstrated not only by the opinions of those investigators who attempted to classify the effects of the powders, but also by a study of all the reports submitted. The slight variations in one direction or the other as shown by his figures are such as one expects in any set of statistics. Indeed, the statistical variations in these figures are surprisingly small. Allowing, therefore, for statistical error, one must conclude that natural and synthetic sodium salicylate are indistinguishable so far as their therapeutic and toxic effects on patients are concerned.

POSTANESTHETIC NAUSEA.

WILDE, in the *Military Surgeon* for August, 1913, for the avoidance of this condition advises:

A preliminary hypodermic of morphine and atropine.

Allowing the patient to go under gradually, using the smallest possible amount of anesthetic. Here the "drop method" is especially desirable.

While still completely anesthetized, washing out the stomach with a warm solution of sodium bicarbonate.

Injecting through the stomach tube 50 to 100 Cc. of cottonseed or olive oil and allowing it to remain.

Cold applications to the throat, with small pieces of ice dissolved in the mouth, when the patient becomes sufficiently conscious to complain of thirst.

THE INTRAVENOUS ADMINISTRATION OF DIPHTHERIA ANTITOXIN.

MIXSELL reaches these important conclusions in the *California State Journal of Medicine* for August, 1913:

The intravenous administration of antitoxin in young children, although not always easy, is perfectly safe when done with skill and care.

The operation does not, as a rule, commend itself to private practice and ordinarily should be performed only under the best of conditions.

There appears from a study of 158 cases to be so little clinical difference in the results obtained from the intravenous and subcutaneous exhibition of antitoxin that we are not warranted in asserting that one method is more efficacious than the other.

Except in severe septic cases, therefore, and cases seen late in the disease, the subcutaneous method is to be preferred.

Antitoxin injected subcutaneously should be given in large initial doses.

INJURY TO THE LENS AND FOREIGN BODY IN THE EYE.

GIBSON in the *Australasian Medical Gazette* of August 23, 1913, tells us that we must be careful to avoid removing an injured eye, which has a chance of retaining or regaining some useful sight, even if the eye is to be aphakic, because we can never be sure that the sound eye may not suffer a subsequent even more serious accident, but if it is threatening or likely to prove a menace to the sound eye, the latter should receive the benefit of any doubt. If the eye is sure to be blind, we have less hesitation in advising its removal.

It is important that a practitioner first consulted by a patient with a penetrating wound of the eye should make the eye and its surroundings as aseptic as possible, and apply an aseptic dressing, even if he proposes to transfer the case at once to a specialist. It is important also, if the case cannot be seen that day by a specialist, that any prolapsed iris be snipped off, and probably that atropine be instilled, or occasionally eserine in preference.

An injured eye developing signs of plastic iridocyclitis not attributable to syphilis should be enucleated without delay.

THE INTRAVENOUS INJECTION OF DIPHTHERIA ANTITOXIN.

Comparing the intravenous and subcutaneous method of administering diphtheria serum, BEYER (*Münchener med. Wochenschrift*, 1913, Aug. 26, p. 1869) found that in cases in which the injections were made on the second day of the illness the average of defervescence was in favor of the intravenous treatment (the standard of defervescence being the day on which the temperature was definitely normal). Five intravenous cases showed normal temperature on the first day after injection as against none of the subcutaneous ones. Taking the first two days together, eleven intravenous and but five subcutaneous ones yielded to treatment. As the days increase the conditions are reversed, and on the third day favorable results were noted in only three of the intravenous and in six of the subcutaneous cases. On and after the fourth day all of the intravenous cases gave normal temperatures, but not all of the subcutaneous ones. A similar inference may be drawn from the tables of the third day on 22 cases, while no conclusions can be derived from the figures for the fourth day. This may be due to the fact that as the disease progresses the influence of the specific treatment is less palpable.

While the rise and fall of the fever with the subjective sensation of indisposition of the patient may be regarded as an objective indication of poisoning or its removal, respectively, the conditions with regard to the local course of the disease are somewhat different. The wide-spread affection of the thorax is of itself not serious as long as the

poisonous products of the diseased area are neutralized. This depends entirely upon whether there is a more or less clean infection, whether the picture is merely one of a fibrinous exudation, or whether there is a greasy coating due to a mixed infection or to a particular reaction of the tissues. The toxin must be regarded as a substance which separates the diphtheria bacilli in order to produce that condition of the tissues (inflammation and necrosis) most favorable for their unlimited increase. The presence of sufficient antitoxic substances prevents the development of the disease; at the utmost the bacilli are present as parasites on the membranes. This explains those cases of healthy bacillus carriers in which no previous illness has been demonstrated.

In passing it may be said that these two factors—the presence of the bacilli and the lack of protective material—do not represent the onset of the disease in all cases. A third factor enters into consideration, and the want of protective material against this leads to toxic changes in the tissues at the seat of the invasion of the bacilli. It is also clear that the toxins are most concentrated in the region of the diseased area—the edematous inflamed membranes. It is easily demonstrated in animals that the edema which forms after the injection of diphtheria bacilli contains diphtheria antitoxin, while no reaction is obtained with the blood serum. We, therefore, have to differentiate between three toxic zones in the organism—the diseased area with its high toxic content, the tissues of the toxic-sensitive organ, and the non-toxic sensitive tissues together with the blood and the lymph. The toxic substances circulating freely, for the time being, are relatively insignificant since the poison does not collect in the blood but quickly flows to the tissue cells. A very small amount of antitoxin will, therefore, satisfy these free toxins as well as those of the loosely woven tissues, although it is well to make a high estimate of the antitoxin content of the blood in order the more readily to set it free. The diseased area naturally requires the greatest amount of antitoxin, and the separated toxins from this should be constantly intercepted as they are thrown off in order to prevent their spread. Prompt neutralization reduces the inflammatory irritation, and the tissues sooner or later are sure to regain their normal aspect. The bulk of the bacilli are removed with the casting off of the necrotic tissues. It is noteworthy that even with a very energetic antitoxin treatment the swelling does not subside as rapidly as, for example, do syphilitic papules after an injection of salvarsan. This may be explained by the fact that in the latter case the excitants themselves are destroyed, while in diphtheria their metabolic products are attacked and the reaction follows rather slowly on the one hand, and, on the other, continually produces new toxins.

Furthermore, according to the most recent investigations of v. Behring, it seems as if an equilibrated mixture of toxin and antitoxin still possesses some toxic reaction; this possibility may also enter as a factor in the localized reaction in the diseased area. Therefore it need not necessarily follow that an apparently slight influence on the diseased area indicates a lack of neutralization of the toxin and insufficient treatment.

In experiments on an equal number of intravenous and subcutaneous injections the figures were again in favor of the intravenous treatment. In the greater number the shedding of the membrane and the shriveling of the ulcers took place within four days after treatment. Within the first two days after treatment the pharynx was clear in five of the intravenous and in only two of the subcutaneous ones. Taking the first three days together the figures are 13 and 7 respectively, while the fourth day the conditions are reversed. It must be remarked, however, that intravenous cases were frequently seen in which the day after the injection the swelling of the pharynx increased visibly and the coating spread superficially toward the soft palate. In several cases, nevertheless, the temperature was lowered. On the whole

the impression was gained that, as far as the effect on the pharynx is concerned, the two methods do not greatly differ. The dose employed cannot be said to have been too small, as authors (cf. Fette) employing larger doses have come to a similar conclusion.

In agreement with other authors no ill effects on the kidneys were noticed by the small amount of carbolic acid used.

In two cases a violent urticaria was noticed a short time after the intravenous injection. This spread rapidly from the elbow, the point of puncture, over the entire body, but disappeared as suddenly as it came. The point of exit of the exanthema is worthy of note. Fette also remarked this. Considering the rapid course of the antitoxin serum through the circulation it does not appear clear why the vein at the point of injection should at the same time be the point of exit of the rash. Perhaps a trace of the serum is left behind at this point as the needle is inserted and withdrawn.

THE MEDICAL VERSUS THE SURGICAL TREATMENT OF PUERPERAL ECLAMPSIA.

ZINKE in the *New York State Journal of Medicine* for August, 1913, tells us that in 1903 he began to use freely Norwood's tincture of veratrum viride, and since has gradually formulated the following definite plan of treatment for puerperal eclampsia:

If the patient has or has had convulsive seizures, 25 drops (15 minims or 1 Cc.) of Norwood's tincture veratrum viride are given hypodermically, and repeated every hour until the pulse is reduced to 60 per minute or less. If within an hour the pulse falls from 150 to 100 per minute, only from 10 to 15 drops are injected in the succeeding dose. More than two or three injections are rarely necessary to bring the pulse down to 60. This is the most valuable remedy in the treatment of eclampsia.

A copious enema of soap-water serves to wash out the large intestine. The catheter is employed to empty the bladder; the urine is measured and examined. As soon as the patient is able to swallow, a teaspoonful of Epsom salts, or some other saline cathartic, is administered per mouth. Stronger cathartics are given only when the saline proves ineffectual. (By this time, if the patient is not in a hospital, she should, if possible, be taken to one.)

Whether the patient is in a hospital or not, immediately after the above treatment has been administered she is given a hot foot-bath or hot pack, preferably the former. Neither the bath nor pack exceeds a half-hour in duration. The patient is then rubbed dry, and placed in a warm, dry bed. The bath or pack is given not oftener than twice in one day. Ordinarily but one bath or pack is necessary in twenty-four hours.

The only food is milk or broth, or both. Water or Fischer's solution may be freely administered. The latter may be given per rectum, or, if the case be an urgent one, intravenously.

Chloral, per orem or rectum, is given if the patient is very restless. Of late Zinke has discarded the use of chloroform and morphine; ether or gas-ether is the anesthetic of choice if operative measures must be employed.

If the patient is at the end of the first stage of labor, and then only if the symptoms are grave, forceps may be employed to terminate labor. If the first stage is not complete, or if labor has not begun and the patient has improved under treatment above mentioned, the case is then left to nature until the first stage of labor is completed, when forceps may be applied.

In cases of anemia, or asthenia from any cause, the normal saline solution, or Fischer's solution, is given, per rectum or intravenously. With very little variation this has been his plan of treatment for the last ten years, during which time thirty cases of eclampsia were observed. Four mothers died—13.3 per cent. Fifteen of the children (50 per cent) were lost.

It is not claimed that the above mode of procedure will be invariably successful, but Zinke's experience impels him to believe that in those cases in which it fails very little could have been expected from sur-

gical intervention. Certainly in the presence of any condition (maternal or fetal) which makes the birth of the child per viam naturalem hazardous or impossible, abdominal or vaginal Cæsarian section, or deep cervical incisions, each depending upon the period of gestation and other circumstances, are justifiable operations. But in view of the evidence presented it can but prove a serious error to maintain that an immediate interruption of gestation or termination of labor, by any surgical method in vogue, is the treatment *par excellence* in eclampsia. The good results obtained from strictly medical care in these cases far exceed the results accruing from all the surgical means proposed for the relief of this disease.

The high maternal mortality, 13.3 per cent, and the fetal mortality, 50 per cent, in Zinke's last thirty cases is due to the fact that two of the mothers were moribund when first seen by him; one remained in profound coma after the first, another after the eleventh, convulsion. The third died of shock and hemorrhage following an accouchement forcé, performed by the doctor in charge of the case. The fourth died soon after the eleventh convulsion and a comparatively easy vaginal hysterectomy performed without an anesthetic.

His faith in the virtue of Norwood's tincture of veratrum viride in the treatment of eclampsia is such that, were he deprived of every other means or methods to combat this disease, he would still have hope of saving his patient in most instances by the aid of this drug alone.

SPINAL ANESTHESIA BY TROPACOCAINE.

MORRISON contributes an exhaustive paper on this subject to the *Birmingham Medical Review* of August 15, 1913.

Admitting the high claims of stovaine and novocaine, but restricting his remarks to tropacocaine, he sums up the position of spinal anesthesia as follows:

1. It is a procedure of proved value and simple technique.

2. Its province is subdiaphragmatic operations.

3. There is no prohibitive age limit.

4. By blocking afferent paths it prevents surgical shock.

5. It induces muscular relaxation, quiet breathing, and abdominal stillness, and thus conduces to rapidity and safety in abdominal surgery.

6. Used with discretion in conditions of extreme asthenia and instability of the medullary centers due to toxemia, exhausting disease, traumatic shock, and old age, it is superior to ether and chloroform.

7. It promotes the patient's comfort and nutrition in the postoperative stage.

8. Its scope is amplified with the aid of scopolamine and morphine.

9. By lowering blood-pressure it tends to faintness and respiratory depression. The patient should therefore be carefully watched after injection, and treated as required by means of diffusible stimulants, pituitrin, saline infusion, and artificial respiration.

10. In a small percentage of cases it is inadequate, and must be supplemented by general anesthesia.

11. It increases the possibilities of surgery by facilitating the work of a surgeon in the absence of a competent anesthetist or assistant.

12. The procedure should be taught in medical schools.

TREATMENT OF SYPHILIS WITH SALVARSAN AND ALLIED SUBSTANCES.

In the *British Medical Journal* of August 30, 1913, PROFESSOR EHRLICH has this to say anent the use of salvarsan:

He agrees with those who had found that its action on the spirochæta was indirect and in the nature of a complement fixation reaction, for salvarsan by itself *in vitro* did not kill the organisms, although if the mixture of salvarsan and living spirochætæ were injected *in vivo*, their death and dissolution would be immediately brought about. He believed, with many other ob-

servers, that salvarsan was not neurotropic, nor did his experiments with rabbits which he had injected with daily doses of from 0.02 to 0.05 grain for three months—a course of treatment they had happily survived—suggest at the subsequent post-mortem examinations that any of the organs or tissues had in any way suffered from the drug. It was only with doses of 0.1 to 0.12 gramme of the alkaline solution that the animals were killed, the acid solution being still more poisonous. The febrile reactions about which so much had been written were due either (1) to technical errors in the administration, or (2) to the toxins generated on the dissolution of the spirochætæ, a phenomenon which might be prevented by a preliminary treatment with mercury. It must be remembered, he said, in this connection that salvarsan killed a great number of other organisms the liberation of whose toxins was doubtless often in part responsible with those of the spirochæta. Recurrences he believed to be the result of insufficient dosage. In discussing the mortality, he observed that chloroform was annually responsible for a much higher percentage of deaths than salvarsan, and he was convinced that the small number might be even further reduced by instituting a careful search in all cases about to be injected for the contraindications—for example, renal insufficiency, Addison's disease, status lymphaticus, and advanced cancer.

The very occasional occurrence of deafness four or five hours after the injection was due to swelling and compression of the auditory nerve in its bony canal, whilst late deafness with commencing cerebral symptoms probably indicated the advance of a basal meningitis, and were manifestations of a true Yarisch-Herxheimer phenomenon. Further injections in such delayed cases (two to five days) would be to pour oil on the fire, accelerate the advance of the meningitis, and kill the patient.

In doubtful cases he advised the trial injection of 0.1 gramme doses at intervals of four days, a procedure of which Professor Neisser had approved. He would listen with great interest to the views of the eminent colleagues who would speak after him, on the possibility of sterilizing the early cases, whether the treatment should be combined with mercury administration or not, and whether any good results had been obtained from its administration in the parasyphilitic affections.

Neisser denied a neurotropic influence and claimed a specific action for the preparation on the spirochæta pallida in particular—an action which, in his opinion, was considerably enhanced by the combined exhibition of mercury in the form of injections of gray oil. He recommended two complete courses of salvarsan and mercury, even in early primary cases.

The paper by Lieutenant-Colonel Gibbard and Major Harrison, R.A.M.C., showing the result of their work at the Military Venereal Hospital, Rochester Row, contained some striking statistics, which in view of the complete disciplinary control of every case are perhaps the most perfect testimony to the economic value of the drug. It was stated that when mercury alone was used for treatment there were 83 per cent of clinical relapses, but that since the introduction of salvarsan only 5.1 per cent had recurred. The summary conveyed the important conclusion that the best results were obtained with a course of two intravenous injections of 0.6 gramme of salvarsan and nine intramuscular injections of mercury prolonged over ten weeks, and that such a combination had effected an annual saving to the State of 70,000 to 80,000 hospital days, an economy equivalent to the cost of keeping a batallion of infantry in hospital for three months.

Professor Wassermann confined his remarks to the influence of salvarsan on the serum test that bears his name, and the main point be brought out—and it was perhaps the most important point in the whole debate—was the absolute necessity of examining the cerebrospinal fluid of every syphilitic at least once in the course of the first year after infection, for the Wassermann reaction. Syphilis, he maintained, once it had produced clinical symp-

toms of cerebrospinal involvement, could not be eradicated from the system, and a positive Wassermann reaction in the cerebrospinal fluid was in his opinion the indication of the possible onset of these, and must be the signal for energetic and prolonged administration both of "606" and mercury, till the reaction became negative both in the serum and the lumbar spinal fluid. He concluded by registering his opinion that salvarsan is the mightiest weapon in medicine.

Dr. MacCormac read a paper by Sir Malcolm Morris and himself on their experience of 500 cases of salvarsan administration at the Seamen's Hospital without a single death. They were of opinion that the occasional severe reactions which had followed the second injection were manifestations of the anaphylactic state.

Dr. Leredde believed that all failures were due to insufficient and too short treatment, and Mr. J. E. R. McDonagh, who followed, happily characterized these as "spasmodic" administrations of "606" which were worse than useless. The latter claimed that "606" had no effect on the spore stage of the life-cycle he had described for the spirochæta, but only affected the gametic elements.

Dr. Saalfield said he had avoided local inflammatory reactions entirely since he had diminished the bulk of his excipient (sterile water) to 40 Cc.

Dr. Basch strongly condemned ambulatory administration, in that dietary indiscretions, alcoholic excess, etc., could not be controlled in out-patients.

Ehrlich's collaborator, Professor Hata, had most encouraging statistical proof to offer, in 166 cases of syphilis, primary, secondary, and tertiary. His experiences in a disease indigenous to Japan, known as "rat-bite fever," had been most remarkable, inasmuch as after one injection in each of 16 cases, in 15 the periodic febrile attacks disappeared completely, and in the sixteenth after a second injection.

Prof. A. Blaschko, the eminent Berlin syphilologist, advised caution in speaking of complete cures; he thought they should not receive a definite pronouncement for another ten years. He discussed the contra-indications, instancing especially chronic alcoholism and nicotine poisoning.

Dr. Fordyce had given 7000 injections with only one death. He agreed with Professor Neisser in that at least two courses should be given, in combination with Hg, even in early primary cases—a procedure which usually cured the secondary cases also, but rarely the severe tertiary. He had been very successful with the syphilis of pregnancy, both as regards the mothers and their infants, and had met with cases of tabes in which the symptoms had been considerably ameliorated by intensive treatment with the drug.

Dr. Schreiber announced some excellent results in the treatment of the prostitute class at Magdeburg. In the past two years the Wassermann reaction had been carefully registered in every case and appropriate treatment adopted, and the women themselves had begun to realize the benefits of the system, so that they were voluntarily presenting themselves for treatment now in increasing numbers, and a very considerable advance toward the ultimate sterilization of the disease at the fountain head was being made.

Dr. McIntosh said he had proved experimentally that salvarsan was non-toxic for healthy individuals by the absence of any sort of febrile reaction after its injection in the normal human subject.

After Dr. Ullman had stated that there was now no anti-salvarsan party, Professor Yadossohn (Berne), who ranks as one of the greatest of living dermatologists, admitted that he had had a very considerable percentage of neuro-recurrences, and he was there to admit his conviction that these were due to the use of small, insufficient doses, of which practice he himself had been the initiator on the ground of caution. By this means he had detected cases of idiosyncrasy, etc., which might otherwise have been sacrificed to the drug; in his opinion it was a case of the choice of two evils. Professor Ehrlich applauded this speaker's remarks.

Professor Ehrlich was glad to find that they were all agreed on the main point—the utility of salvarsan. As regards the dosage, there would seem to be dangers both from the administration of too much on the one hand and too little on the other, and it was therefore most important—as more than one speaker had emphasized—that only those of wide experience should be entrusted with the administration of the remedy.

ONE HUNDRED AND SEVENTEEN CASES OF INFANTILE DIARRHEA TREATED BY THE BACILLUS LACTIS BULGARICUS.

CLOCK makes a report on this subject in the *Journal of the American Medical Association* of July 19, 1913. He says the most impressive facts which stand out boldly as the result of this method of treatment are:

The gain in weight in spite of the number of stools.

The rapid change in color of the stools to yellow.

The rapid subsidence of fever.

Absence of mucus and blood from the stools at the end of forty-eight hours.

The fact that the hygienic surroundings of the patients and the degree of intelligence of the mothers had no influence on the results.

A starvation diet, accompanied by purgation, is productive of loss of weight and strength, and serves to prolong the course of the disease, and further, such a procedure can no longer be advanced as a rational method of treating infantile diarrhea.

The digestive powers in infantile intestinal conditions, even when associated with fever, are not so impaired as to prevent the digestion and assimilation of a milk diet. This fact is corroborated in typhoid fever, where the high caloric diet, in contrast to the starvation diet, has reduced the mortality to a remarkable degree. Moreover, the cases herein recorded prove the value and rationale of continuing a milk diet in infantile intestinal conditions.

In severe cases best results are obtained by administering a large number of the tablets during the first two or three days of the treatment. As many as forty-two bulgarian tablets in twenty-four hours have been given to very young babies without untoward effects.

The implantation method of treatment has progressed beyond the experimental stage, and the results of its use can no longer be questioned or disputed. The treatment has been proved of practical clinical and scientific value, and its simplicity should appeal to every practitioner. One tablet was given before and after each feeding.

In order to secure the best results, in using the implantation treatment, a pure culture of the true B. lactis bulgaricus must be employed; otherwise disappointment will follow. Bacteriologists recognize the fact that the same organism, isolated from different sources, will vary in its virulence and in certain other characteristics; and the B. lactis bulgaricus is no exception to this rule. While similar organisms have been isolated from the soured milks of several eastern countries, namely, Russia, Egypt, Armenia, Syria, etc., yet the bacillus isolated from Bulgarian soured milk has been proved to possess the greatest antagonism to putrefactive bacteria. Moreover, in using a culture of this organism for implantation treatment, it is essential that the culture show only viable organisms and that these be present in sufficiently large numbers. Without doubt, it has been the lack of a pure, active culture of this bacillus in viable form that has been the cause of the indifferent results obtained in previous years with lactic acid bacterial therapy.

ADRENALIN IN WHOOPING-COUGH.

LORD, in the *British Medical Journal* of July 19, 1913, says that during a recent epidemic of whooping-cough in his neighborhood he found that the usual remedies completely failed in one instance—that of a delicate child of seven years, whose case was complicated by attacks of bronchitis. She had been ill for about six weeks, the paroxysms still continuing to occur, on the average, every three or four hours, and the

bronchitis becoming more and more serious, when he happened to read Dr. G. V. Fletcher's account of his adrenalin treatment of whooping-cough in the *British Medical Journal* of December 28, 1912, and determined to try it.

He began with 3 minims of the 1-in-1000 solution by the mouth every four hours, and almost immediately noticed a marked diminution in the severity and frequency of the paroxysms. He was soon able to limit the administration of adrenalin to three times a day, and continued it thus for three weeks, at the end of which time the child had completely recovered from the cough and the bronchial symptoms, and had steadily improved in every other way, there being a total disappearance of the anemia and wasting which had been produced by the persistent vomiting.

As this case occurred toward the end of the epidemic, Lord has had no opportunity of trying the treatment in any others, but this one instance seems to him to be so significant as to be worthy of mention.

MEDICAL TREATMENT OF CHRONICALLY DISCHARGING EARS.

HAYS in the *Charlotte Medical Journal* for Septebmer, 1913, reminds us of the well-known fact that the chronically discharging ear is a very troublesome thing to deal with at times. The main reasons for this are that the discharge may be due to a variety of causes. In some cases no evidence of bony destruction may be found in the middle ear or antrum, the discharge being due to the constant drawing up of secretion from the nasopharynx; in other cases, the discharge is extremely fetid and caused by membranous or bony destruction in the middle ear itself.

It is surprising to see how many cases of chronic ears respond to medical treatment. And oftentimes the worst cases, which one expects will eventually succumb to a radical mastoid operation, will get well after one or two treatments. A few years ago a woman came to Hays, complaining of a fetid discharge from the left ear since childhood. He cleaned the ear out thoroughly with peroxide and prescribed alcohol and boric acid instillations. After this one treatment and the use of the drops for a week the discharge ceased entirely. On the contrary, he has been treating a young boy for the past year who has a continuous non-odorous discharge from the right ear which has yielded to no form of treatment. The perforation in the drum is small, and the Eustachian tube acting from capillary attraction is constantly drawing mucus and muco-pus from the nasopharynx. This boy is now at the age of puberty, a time when all the turbinates are increasing in size, due to the activity of the erectile tissue at this age. Hays feels that this has a great deal to do with his present condition and that the ear discharge will eventually subside when he outgrows this period.

The secret of success in the treatment of chronic discharges from the ear is cleanliness. Not only the middle ear must be kept clean, but the nasopharynx must be kept clean. It is not sufficient to ask the patient to attend to his ears. He must be put in the hands of a competent otologist who can treat the parts directly. The true anatomical condition which causes the discharge must be sought for. Meddling in the dark is worse than useless.

He firmly believes that at least 80 per cent of chronically discharging ears may be cured by proper cleansing methods. The ear canal and middle ear should first be kept free from filth such as cerumen, hard, dried blood, and thick, drying pus. This is best accomplished by direct syringing with a 10-per-cent peroxide of hydrogen. The parts are then dried and a search made for pathological conditions. All granulations should be burned away with the silver stick. Dead bone should be removed with fine forceps and recesses or pockets opened up. The office instillations of absolute alcohol alone, or containing boric acid, iodine, or alum, are of great value. The patient rests his head on the opposite side, the drops are instilled and allowed to remain in the ear for five or ten minutes. The ear should be cleaned again and the patient told to keep it

clean by using some irrigation at home, preferably a 1:10,000 bichloride of mercury solution.

A great deal of attention should be paid to the nose and throat in these cases, as a pathological condition of these parts will often cause a continuance of the discharge. Suitable operative procedures, such as the removal of tonsils and adenoids, correction of septal deflections, and proper treatment of hypertrophied turbinates, etc., will improve the catarrhal processes in the nose and throat, and proper stimulation and antisepsis of the mucosa of the nasopharynx have a direct influence on the Eustachian tube and middle ear, tending toward an alleviation of the discharge.

DIABETIC COMA.

In the *Boston Medical and Surgical Journal* of September 4, 1913, JOSLIN gives the following advice:

As soon as the presence of severe acid poisoning appears, watch the patient carefully from day to day. If in doubt, increase the alkali to 30 grammes, but seldom to more for disturbance of digestion may result. Should the patient exhibit any premonitory signs of coma, the diet may be best relaxed by the addition of oatmeal, or if haste is needed, by giving milk with a teaspoon. Temporarily the alkali may be increased to large quantities, even a teaspoonful every hour for two or three hours, and then every hour and a half, and then every two hours—not more frequently because the stomach may be upset. Not only an extra quantity of carbohydrate and alkali should be given, but pains should be taken to furnish adequate liquid with which the body can excrete the excess of acid. To prevent dilatation of the stomach it is well to give part of the liquid in the form of salt solution by the rectum. A patient with beginning coma must usually secrete at least five quarts of urine daily in order to come out of the same. Such a large secretion of liquid is necessary because the B-oxybutyric acid can only be removed from the body in dilute solution. Unless water is given freely the patient draws upon the fluid in the tissues to an alarming extent. The fall in weight in such cases is extremely rapid.

The treatment of actual coma is unsatisfactory. First of all one must furnish adequate fluid for the patient; secondly, an alkali is advisable. Now that we are so accustomed to the intravenous technique we may have rather better results from the introduction of a 3-per-cent solution of sodium bicarbonate or even sodium carbonate, but even the best men advocate the administration of only comparatively small amounts in this way—for example, 30 grammes. If given promptly it will often be efficacious. Treatment of diabetic coma is its prophylaxis, and Joslin considers it an error in treatment to allow a patient to go into coma unless the patient has been kept out of the same by the use of diet and alkalies for many months.

Surgery in diabetes is a most interesting problem. To-day it is not generally felt that the sugar *per se* is especially dangerous. Danger, however, does arise from the possibility of the patient going into the coma. This occurs often as a result of carbohydrate starvation following the operation. Joslin's rule is that the patient shall be operated upon as soon as the surgeon thinks safe after a meal, and that the patient shall be supplied with food as soon as possible after the operation. It is conservative for a few days preceding an operation to give alkalies in moderate doses—for example, 20 grammes sodium bicarbonate. If an emergency does not exist, by all means get the patient into the best possible condition by rendering him sugar-free before the operation. If the patient, however, is a severe case, Joslin suggests the following procedure: In a preliminary period test his ability to live upon a vegetable and oatmeal diet and watch its effect upon his metabolism. If the result is satisfactory, a week later, upon the two days preceding the operation, give the patient a vegetable day, and immediately preceding the operation an oatmeal day. Sufficient carbohydrate will thus accumulate in the body to tide him over the twenty-four to forty-eight hours after the

operation when eating is difficult. Joslin has recently had a patient, who had been in diabetic coma and had recovered from the same, go through a laparotomy successfully under such a plan of treatment.

REGENERATION OF BONE FROM PERIOSTEUM.

Haas (*Surgery, Gynecology and Obstetrics,* August, 1913) shows by an excellent series of experiments that periosteum, especially in the presence of blood-clot, has the power to regenerate bone; that regeneration of bone is not solely dependent upon the presence of preëxisting bone; that regeneration of bone was never found excepting when periosteum was present.

Haas states that since this article was submitted Schepelmann has found that the periosteum when transplanted into the omentum, mesentery, spleen, liver, etc., regenerated persistent new bone and emphasizes the importance of vascularity, integrity of the cell, and use of entire periosteum.

Albee found that the periosteum when transplanted into muscle did not regenerate into bone. He thinks that the outer layer of the cortex is necessary and agrees with Macewen in most respects.

TUBERCULOSIS OF THE KIDNEY.

In an excellent article on this subject, Kapsammer (translated by Grad, *American Journal of Obstetrics,* September, 1913) summarizes both from the historical and practical side the results of studies of this condition. It is recalled that Albert in his text-book of 1891 stated that "Nephrectomy for tuberculosis of the kidney is an error of the times. Men have been found who would perform this operation." It has been taught that it is an affection commoner in women than in men, in the proportion of about 1 to 4. This Kapsammer believes to be an error, holding that the disease is more common in men. Israel recognized a protopathic form in which the kidney was the only organ involved, and the deuteropathic form in which the kidney is not the only organ affected by tuberculosis. Primary tuberculosis is as a rule by the hematogenous route, the ureters and bladder being involved secondarily. Against this descending mode of tubercular infection stands an ascending type, in which the kidney becomes secondarily infected from the bladder focus by way of the ureters. In the deuteropathic form, where the kidney becomes secondarily involved, the bladder may be the first organ affected. It is immaterial whether the bladder becomes infected by the hematogenous route from some distant focus of infection in the organism, by the lymphatic route from the genital apparatus, or whether the infection comes by way of the orificium urethræ internum.

Küster claims that lesion of the kidney may often be the result of an ascending infection. The fact that tuberculosis of the bladder with bladder symptoms can exist without any lesion of the mucous membrane of the bladder is not as widely known as it should be. It has been observed that kidney tuberculosis can exist without involvement of other parts of the urogenital apparatus. We may have an isolated infection of the kidney of hematogenous origin, another focus in the testicle, or ovary, where no continuity of surfaces can come into question. Where ascending infection has occurred it is not sufficient to have tuberculosis of the mucous membrane of the bladder, but we must also have a bladder insufficiency and an insufficiency of the detrusor. Not only the mucous membrane of the bladder but also the muscular tissue must be diseased. The specific infection of the second kidney has been observed to occur in two ways: First, the ascending mode of infection from the bladder, which is in the main theoretical. Second, the hematogenous route. Tuberculosis of the kidney may appear as a tubercular nephritis with the appearance of tubercle bacilli in the urine. The lesions are in the epithelium of the kidney and are rapidly fatal. If interstitial changes are present at the same time the disease takes a slower course.

Tubercular nephritis is to be distinguished from nephritis in the tubercular, a condition which occurs in individuals ill with extensive tuberculosis. This same process is also to be found in the neglected cases of one-sided tuberculosis of the kidney, where the second kidney becomes affected. The nephritis in the second kidney is the result of a toxic process, and as a rule it disappears when the tubercular kidney is extirpated.

There is an infiltrating form, which leads to sclerosis of the kidney. In this form tubercles occur throughout the entire kidney substance, accompanied by extensive interstitial changes. The organism may so lose its characteristics as to resemble a neoplasm. The capsule undergoes an active process of proliferation, this proliferation appearing as a fungating growth or connective tissue or as fat tissue, the latter leading to changes in the pelvis. Chloroform extracts of dead tubercle bacilli when injected bring about a fibrinous inflammatory reaction in the tissues of animals suggesting the fibrosis which accompanies this type of tuberculous nephritis. There is a form which appears as a tuberculous ulceration of the papilla. The cavernous is by far the most frequent form of tuberculosis of the kidney. Between the medullary and cortical portions, the tubercles break down and become confluent, with the formation of a cave. The first caves usually form at the two poles of the kidney, since in this region there is a direct vessel from the aorta to this region, having no communication with the capillaries of the other structures of the kidney. If the entire organ becomes excavated pyonephrosis occurs with no enlargement of the pelvis.

Finally, there is a tubercular pyonephrosis. The papillæ and pyramids disappear and the pelvis of the kidney becomes enlarged at the expense of the parenchyma. If the kidney structure is markedly destroyed, the whole kidney becomes one large pus sac. The enlargement of the pelvis of the kidney is, as a rule, secondary. When the ureters are not obstructed, it is the result of the destruction of the kidney substance. As to the symptoms of renal tuberculosis, there may be practically none subjectively, or simply a dull ache independent of movement, or severe pain; enlargement often cannot be detected by palpation, tenderness may or may not be present. Irritability of the bladder is a highly characteristic complaint, and usually, but not always, indicates vesical involvement. Polyuria is a characteristic symptom, as are albuminuria, pyuria, and hematuria. The acid reaction of the urine is pathognomonic. Fever is infrequent. The first symptom of which the patient complains is usually referred to the bladder.

A prompt nephrectomy and ureterectomy followed by systematic treatment of the bladder gives the greatest promise of cure.

ON THE EFFECT OF SCARLET RED IN THE TREATMENT OF GASTRIC AND DUODENAL ULCER.

FRIDENWALD and LEITZ (*Monthly Cyclopedia,* June, 1913) note that Davis has suggested the use of scarlet red in the treatment of ulcer of the stomach, having proved its usefulness experimentally in animals. The powder is reddish-brown in color, giving scarlet red in oil solutions. It is tasteless, neutral to litmus, in one per cent oil solution, insoluble in water and urine, even after boiling. It is soluble in alcohol, ether and chloroform, olive oil, fats, fatty oils, turpentine, warmed petrolatum, and paraffin. One gramme of finely divided powder, heated gradually in 100 Cc. of olive oil to 200°, remained in solution for two days or more at ordinary room temperature. Approximately a two-per-cent solution can be made, but the scarlet red does not stay in solution for any length of time, and tends to precipitate at once on cooling. Gastric juice, experimentally, has no effect on the scarlet red. Agar and bouillon cultures give abundant growths with staphylococcus and colon bacillus despite the addition of one-per-cent solution of scarlet red. When given by the mouth it is a fat-selecting vital stain. In the course of months the stain is gradually

eliminated. Subcutaneous and intraperitoneal injections stain only the fat in actual contact with the scarlet-red solution.

Scarlet red may be administered in doses of 15 to 20 grains three or four times daily without the slightest toxic effect, provided a pure preparation be employed. It is best given in 7½-grain konseals, two of which may be taken three or four times daily before meals. It may, however, be administered in much larger doses, and only after very large continuous doses can the odor of camphor be detected in the urine. There was not the faintest toxic symptom during its employment in over 100 patients. Of 37 cases treated by the scarlet red, these being instances in which the result of the rest cure was unsatisfactory, or ambulatory cases which remained unbenefited by the usual treatment, the great majority were cured. The dosage per diem varied from 40 to 60 grains. While it is held that the drug cannot replace the usual forms of treatment, it is urged that when it is administered in conjunction with them it frequently renders the cure more effective. Its use need not interfere in any way with the administration of other remedies, such as the alkalies or belladonna, when indicated, and, in fact, the effect of the combination is at times most beneficial.

THE SURGICAL TREATMENT OF MONARTICULAR RHEUMATOID ARTHRITIS OF THE HIP.

Forbes *(New York Medical Journal,* Sept. 13, 1913), for the relief of osteoarthritis of the hip, a condition attended by harassing pain and progressive disability, revives the operation of excision of the head of the femur, holding that the procedure can be performed with very little hemorrhage. The incisions as recommended by Brackett, of Boston, are as follows:

The first extends from the anterior superior spine posteriorly to the superior extremity of the great trochanter. The second runs down over the external surface of the femur for about three inches. At the junction of the first and the second incisions, a third incision is made, running in a direction posteriorly for about two or three inches. The flaps formed by these incisions are then dissected away from the deep fascia. This exposes the great trochanter covered by the vastus externus muscle. With a chisel about the width of the great trochanter this prominence with the attached muscles is detached from the shaft of the femur, after the method first suggested by Mr. Robert Jones, of Liverpool. The soft parts, including the muscles, are elevated by blunt dissection both anteriorly and posteriorly from the neck of the femur to the acetabulum. Between these soft parts and the periosteum, both anteriorly and posteriorly as well as superiorly, are inserted the evulsors. These evulsors are carried around the internal surface of the acetabulum, detaching the capsule in all parts from the acetabular rim. The instruments used in this stage of the operation are very similar in shape to an ordinary tack lifter—*i.e.,* from a handle runs a straight shank curved at the end and terminating in a spoon-like extremity. They are blunt and strongly made of carefully prepared and non-brittle steel. By means of manipulations of the lower extremity in the hands of an assistant and by a prying action with the evulsors, already described, the head is thrown out from the acetabulum by the leverage action of these instruments, whose fulcrum, of course, is the acetabular rim. When the head has been removed from the acetabular cavity the aneurism-like needle—a modification of that originally suggested by McEwen and used for this purpose by Mr. Robert Jones—is passed around the neck of the femur, and conducts a Gigli saw as near as possible to the head. The head is then removed by means of this saw. The acetabular rim is then examined and all osteophytes removed from it. The acetabular cavity will often be found to be extraordinarily deep. All hemorrhage being controlled, the neck of the femur is then manipulated into the acetabulum; the great trochanter is replaced in its normal position and fastened there by means of a

wire nail. The deep muscles are sutured as tightly as possible about the bone in order to maintain the neck, from which the head has been sawn, in the position once held by the head. The lower extremity is strongly abducted, thus jamming the neck into the acetabulum and assuring this position, and the extremity is encased in a plaster-of-Paris spica bandage. The extremity is maintained in this position for at least six weeks.

THE TREATMENT OF UMBILICAL HERNIA IN CHILDREN BY THE SUBCUTANEOUS ELASTIC LIGATURE.

FRAZER *(Lancet,* Sept. 27, 1913) recognizing the fact that umbilical hernia in infants exhibits a strong tendency toward spontaneous cure, and that by means of a simple pad for inversion of the abdominal wall over the umbilicus cure is hastened and assured, though at the expense of much watchfulness and considerable time, is led to regard favorably Bruns's suggestion of a prompt and assured remedy in the form of an elastic ligature which should not be applied to children less than six months old and should be preceded by the pad method. An opening, which is large enough to admit the tip of the finger, is considered unsuitable. The sac must be empty at the time of operation. Irreducible contents of any character whatsoever must be looked upon as an absolute contraindication to the operation. As long as the opening in the parietes is suitable the size of the sac need not be taken into consideration.

The method has been practiced upon 21 patients. The procedure does not occupy more than a couple of minutes in the accomplishment and the after-treatment is of the most simple description. The preliminary treatment consists in a thorough evacuation of the bowels and the reduction of flatulence by suitable dietary before operation. A few simple instruments are required in the shape of a knife, dissecting forceps, and a blunt dissector. The essential material is a piece of elastic cord one-eighth of an inch in diameter and about three inches long. The actual technique of the operation is as follows: The skin over the fundus of the protrusion is grasped with a pair of dissecting forceps, and skin and sac are pulled gently upward from the abdominal wall. Great care is exercised in ascertaining that the contents of the sac are completely reduced. Three small incisions are made at equal intervals around the periphery of the sac, at the point where the skin is reflected on to the abdominal wall. These incisions penetrate the skin and subcutaneous tissues, but they must not injure the sac. With a blunt dissector it is now possible to undermine the tissues around the pedicle of the sac—the three radiatory incisions facilitate the performance of this. The elastic ligature is now pulled beneath the skin, following the track of separation. This is most conveniently done by means of artery forceps, which pulls the ligature from one incision to another around the periphery. When the ligature is in position, the operator, having satisfied himself that the sac is empty, pulls the ligature as tightly as possible around the pedicle of the sac and fastens it so with a stout piece of silk. The ends of the elastic ligature are left protruding through one of the incisions, and they are cut to a convenient length; a simple dressing is applied and kept in position by means of a band of adhesive plaster.

The ligature is allowed to remain in position for six days and then removed by cutting the silk knot. The opening which it leaves quickly closes. This early removal of the ligature differs from the method employed by Nota, of Turin, as described by Bruns. Nota does not remove the ligature, but allows it to slough out, which it does usually about the twelfth day. An early removal is to be preferred; it in no way jeopardizes the ultimate result, and it is a much more aseptic proceeding. A dressing is worn until the wounds are healed. No further application is made.

One can only say that the results have been uniformly successful. The first case operated on was one which demonstrated the permanency of the cure. About two

days after operation the child developed whooping-cough, but in spite of persistent coughing and straining there was no recurrence of the protrusion.

The advantages are that the operation is essentially of the most simple type; the after-treatment is brief and satisfactory; the cure is apparently a permanent one.

THE DUCTLESS GLANDS AND THE NERVOUS SYSTEM.

ELLIOTT *(British Medical Journal,* Oct. 11, 1913) points out that our knowledge of the ductless glands is still very scanty, and has been hard to come by. There is great fear lest theory and analogy should be permitted to develop into statement and assertion, and be accepted as conclusive before their foundation on solid facts has been proved. As an example may be quoted the views of the Vienna school on the actual function of the thyroid secretion, as expounded by Falta and Rudinger. The thyroid and parathyroid secretions oppose one another, the former stimulating the sympathetic nerves, the latter inhibiting them. The secretions of the pancreas and of the parathyroids retard metabolism, those of the thyroid and adrenals augment it. Hence loss of the thyroid secretion leads to: (1) slowed metabolism; (2) absence of stimulation of the adrenals; (3) escape of the pancreas from inhibition; (4) decreased excitability of the vagus in all its area of distribution, which includes the thyroid gland. This curiously intricate statement of function is purely speculative. Medicine owes no gratitude to those who teach to her theories without proof.

One of the perplexing features of all these glands is their double anatomical constitution. In each two types of cells are found living in close neighborhood, often under the same roof, and yet there is no obvious reason why they should have chosen such a union. Thus the thyroid gland is associated with the parathyroids. Removal of the latter has been supposed, though without sufficient proof as yet, to set up the condition of tetany by means of exaggerated excitability of the skeletal muscles through their motor nerves. The pituitary gland can be divided macroscopically into the posterior "pars nervosa" and the anterior glandular portion. Microscopically it is extremely complex, the anterior part containing two distinct types of cell, eosinophile and basophile (or chromophobe) respectively. The nervous part behind resembles neuroglia tissue of an indeterminate character. Between the two lies the "pars intermedia" of the pituitary, roughly resembling the anterior lobe and consisting of columns of cells enclosing alveoli distended with colloid secretion. The adrenal glands are well known to consist of cortex and medulla; thanks to the work of the Cambridge School of Physiology, it is now recognized that the adrenal medulla consists of paraganglion cells, controlled by the splanchnic nerves and secreting the adrenalin that maintains the unstriped muscle regulated by the sympathetic nervous system at a fair level of tone for its routine activities in the blood-vessels, viscera, and glands. The cortical cells do not belong immediately to the sympathetic group; overgrowth of the cortex in children is associated with sexual precocity and premature adolescence. As for the pancreas and the testes, though they, of course, are not ductless glands in the strict sense of the word, yet each produces an internal secretion, and each again contains secreting cells of two distinct types. The cortical cells of the adrenal glands secrete a special lipoid, a doubly-refracting fat, and so do the interstitial cells of the testis. It is also of interest to note that active chemical substances of relatively simple molecular constitution, not destroyed by boiling, can be extracted from the adrenal and pituitary glands, and apparently from the thyroid and the pancreas also.

Increasing emphasis has been laid in the last few years on the need to look upon the ductless glands as parts of a connected whole. If one is diseased the others suffer, all having some functional relationship with each other.

Elliott ends his paper with the enumera-

tion of half a dozen common clinical features that suggests a common bond between the ductless glands, and urges once more the pressing need for further observation and research in the matter of these tangled relationships. He particularly commends the adrenals to the attention of any neurologists who may be seeking for deeper acquaintance with the physiological processes of nervous activity.

RINGWORM TREATED BY X-RAYS.

EMRYS-JONES *(British Medical Journal,* Oct. 4, 1913) states that during the last three years the single-dose method has been used. The apparatus used consists of a twelve-inch coil with a dipper brake and tachimeter for regulating the number of interruptions. This is in circuit, with an automatic cutout switch. By this means a definite number of interruptions can be given. There are also arrangements for measuring accurately the voltage and amperage passing through the primary; the milliamperage through the tube; alternative spark gap; and a Sabouraud pastille, which is bleached in the sun and used four or five times, is employed for each application.

With this apparatus the average time for treatment of a single patch varies between five and eight minutes. The advantage of the automatic switch is that one can leave the apparatus for a time, knowing that there is no danger of an overexposure. The patients are treated inside a cubicle, the operator being outside. The cubicle is made of two thicknesses of wood, sheet lead ⅛ inch thick being interposed. The operator can watch the patient through a lead-glass window. As regards tubes, small light anode tubes are used, being contained in a stand fitted with lead-glass shield, which is movable in any direction.

The statistics of the last two years (August 4, 1911, to August 4, 1913) are as follows: The number of patients treated was 200. Of this number 93 were infected over the whole scalp; in the remainder the scalp was only partially infected, and required from one to four applications. Care has been taken to find out the number of patients who had to be reëxposed to the rays, the reason for second applications being: (1) nervousness on the part of the patients, and their inability to keep still; (2) lack of suitable tubes owing to an excess of patients—this, unfortunately, in hospital work, is no uncommon thing; (3) small infected areas which have not become epilated owing either to movement on the part of the patient or to the tube not being quite central in the holder, as tubes vary in size, and some do not fit the holder.

From all these causes 26 had to be treated a second time, this being the number out of a total of 630 applications. The majority required one more application to a small area, which was given through a small lead-glass adapter. In the 93 cases infected over the whole scalp Keinbock's method was almost entirely used, five applications being given—one to the top of the head, one to the vertex, one to the back of the head, and one to each side. The usual practice was to give two or three applications each morning, and the remainder in about a week. The average time in which epilation took place was two weeks and five days. The usual time for the hair to recommence to grow was about seven weeks. In one case the hair was not fully grown for six months. In another, owing to two patients having identical names, one side of one patient's head received practically a double pastille dose. It is interesting to note that the hair returned quite healthy, although a considerable time afterward.

There has not been a single case of *x*-ray burn or of permanent alopecia, and one must conclude that parents would naturally report if such had not been the case.

By far the greater number of patients had been having treatment with ointments and lotions, some even for years. The treatment with *x*-rays is quite the best, and certainly the quickest, especially for well-established and extensive cases. With proper apparatus and in expert hands, it is perfectly safe. It is encouraging to note that several school clinics are supplied with

x-ray apparatus, which is reported to be doing good work.

It is very difficult to work out the exact cost for each patient, but it is not excessive when a large number of patients are dealt with, and, even if it is in excess of ordinary treatment, the great saving in time fully justifies it.

AUTOSERA THERAPY.

SMITH (*Saint Paul Medical Journal,* September, 1913) implies by the use of this term the therapeutic use of the patient's own serous exudates and transudates. It implies the treatment of morbid conditions attended with a collection of fluid in the serous cavities of the body, by the hypodermic injection subcutaneously of small amounts of the patient's own serum.

Gilbert of Geneva was the first to use the method of treatment in 1890. Many reporters have used it since, especially Marcou, who had uniformly beneficial results in 82 cases. Lemann, in 1910, reported extraordinary results.

The technique of the procedure is exceedingly simple, a graduated glass syringe with a long needle alone being needed, except for the iodine and a brush. The syringe and the needle are boiled, and the skin over the site of puncture painted with iodine. Absolutely no previous preparation of the patient is needed, and the site of puncture is identical with that of ordinary paracentesis (abdominis sive thoracis). The needle is inserted through the parietes into the fluid and the plunger of the syringe slowly withdrawn. If to inspection the fluid is not purulent, ten cubic centimeters or less are drawn into the syringe. The needle then is partly withdrawn until the point of it lies within the areolar subcutaneous tissue. The needle is then turned and inserted a little further into this tissue and from two to five cubic centimeters injected. The whole procedure, with ordinary care and cleanliness, is absolutely non-dangerous and can be employed in dispensary, hospital, office, or private practice.

Following the injection the subjective improvement is remarkable. The patient is relieved of his dyspnea and pain and is mentally more cheerful. Very frequently they demand a repetition of the treatment, it makes them feel so much better. The phenomenon is too constant to be psychic.

The objective symptom demonstrated is a rapid diminution of the accumulation of fluid leading to total absorption. Many cases which had been subjected to repeated tapping on account of the reaccumulation of fluid have been treated in this way, and the results have been so good as to make possible the abandonment of the frequent paracentesis. The fluid does not reaccumulate. The diminution of the fluid is accompanied as a rule by a tremendous diuresis; the amount of urine passed in twenty-four hours may measure 2000 cubic centimeters; in two cases reported it increased from 750 to 1100 Cc. and from 900 to 1900 Cc. respectively. This diuresis occurs after twenty-four hours and persists for some time, often until the accumulation of fluid is gone. There may be a sharp febrile reaction following the reinjection of the fluid, and it may be accompanied by a chill, lassitude, etc. It may be compared to the reaction which at times accompanies the use of tuberculin diagnostique, but like the reaction in such instances it is variable and fleeting. The rise of temperature may be immediate or within a few hours, but it rapidly falls to the normal and remains there. Further, a temperature which has been running at an elevation, with marked diurnal variations, stops its uneven course and promptly settles to the normal range.

It is interesting, in cases in which this therapy has been used, to note a loss in weight coincident with and corresponding to the loss of fluid. Following the disappearance of the fluid there is a steady and natural gain in weight.

Some observers state that the reinjection of the fluid is absolutely without influence on the course of the disease. They have seen no results symptomatic or otherwise in their experience with this therapy.

This treatment has proved beneficial in all varieties of serous effusion no matter

what the cause. It was originally used by Gilbert for cases of tuberculous pleurisy with effusion, but since then its use has been extended to every form of effusion, and as appears by Lemann's summary 232 out of 309 reported cases, or a trifle over 75 per cent, have shown favorable results. Since then the reports of cases in which the therapy has been employed have maintained a slightly higher percentage of favorable results. The kinds of cases amenable to the form of treatment are infectious or mechanical effusions, or transudates, due to tuberculosis, carcinoma, typhoid fever, or loss of cardiac compensation. Hydrocele and increased spinal fluid have been subjected to this therapy with good results in a large proportion of the cases.

The preferred time of use is during the first or second week of the disease, and when used then resorption is accomplished in from ten to twelve days. When effusion is of three weeks' standing or more, a longer time is taken to cure the trouble and a second or third injection may be needed. When the effusion has lasted in the neighborhood of six weeks the procedure is not advised, as the effusion is too well walled off to admit of its easy reabsorption.

Repeated injections are indicated under certain conditions: If the temperature remains at 100° after three days from the first injection, the process should be tried again. If there has been no diuresis at the end of three days, another injection is advised.

The length of time covered by the reports is now some twenty-two years.

The results have been so uniformly good from the use of this therapy that the method is entitled to consideration and should be brought to the attention of the general practitioner.

No foreign proteid is introduced and there is no danger of anaphylaxis.

The harm which may be done is *nil*, while the benefits may be very great.

A local infection is not turned into a general infection.

The mode of action is not known definitely.

The determination of the causes of the reactions presents a most interesting problem for further study.

THE CEREBROSPINAL FLUID IN SYPHILIS.

ELLIS and SWIFT (*Journal of Experimental Medicine,* vol. xviii, No. 2, 1913) emphasize the value of the frequent use of lumbar puncture in the care and study of syphilis. The procedure is simple, and the information obtained of extreme value. In considering prognosis and the amount of treatment likely to be required, the examination of the spinal fluid for possible abnormalities in the secondary stage of the disease is of the utmost importance. The diagnosis of any syphilitic condition of the central nervous system is not complete without an examination of the spinal fluid, and in the treatment of these conditions repeated examinations of the fluid furnish the best guide to therapy. A negative Wassermann reaction in the blood is no evidence that the nervous system is not affected, and every patient with increased cells, globulin, or a positive Wassermann reaction in the spinal fluid needs active antisyphilitic treatment. No patient who has been infected with syphilis can conscientiously be discharged as cured until the spinal fluid has been examined and found normal, even though he remains free from signs and symptoms and has a persistently negative Wassermann reaction in the blood.

PEDICULOSIS CAPITIS AMONG SCHOOLCHILDREN.

SOBEL (*New York Medical Journal,* Oct. 4, 1913) reports upon the incidence of pediculosis and concludes his paper as follows:

The severity of the cases and the number of children excluded from school have been materially influenced for the better by the methods used: morning inspection, periodic classroom examination, individual and group instructions of pupils at school, braiding of hair at school and unbraiding at home, consultation with parents at school and at home, practical demonstrations in

the house, exclusion of children with live pediculi, aggravated cases and those who persistently refuse treatment, coöperation of principals and teachers, mothers' meetings, distribution and explanation of circulars of information, and instruction in personal and home hygiene and in cleanliness.

Pediculosis capitis is of importance from the standpoint of general cleanliness, disturbance of the general health, transmissibility of disease, interference with school attendance, production of secondary infections, and lowering of the child's mental equilibrium.

The more stationary and the more homogeneous the population and the less the influx of immigration, the easier and more successful the control of this condition.

While the number of other communicable diseases of the scalp, skin, and eyes has gradually diminished from year to year, the number and percentage of cases of pediculosis have practically remained stationary. This is accounted for by the fact that the tenement population consider pediculosis of little import, not dangerous, and frequently a sign of good health, while they fear the other forms of contagion, and take all precautions to prevent their spread and to effect their prompt cure. The other communicable scalp, skin, and eye diseases are frequently treated and controlled at the school, and are more localized, more readily accessible, and responsive to treatment.

Treatment of the school child alone is of little value in the control of pediculosis capitis. Other members of the family, the clothing, bedding, combs, brushes, towels, washcloths, etc., must be kept clean. The solution of the problem is in the home. The school is but a means to an end.

Unfavorable home conditions are often the result of poverty *per se;* quite as frequently they are due to carelessness, indifference, ignorance, irresponsibility. and neglect.

The destruction of the pediculus is relatively easy. The eradication of the nits by local medication is unsuccessful. Removal of nits is accomplished best by mechanical means.

Personal individual instruction of the mother in the home by the nurse, and practical demonstrations by her as to prevention and treatment, are the means which assure success. Mothers must be taught to look after the older school-girls, as well as the younger members of the family. The common family brush and comb must be discontinued, and the nurse must show parents the dangers of their use and the method of transmissibility by this and other channels.

Instructions *per se* even if printed in the mother tongue of the people are useless. These must be supplemented by personal instruction. Circulars printed in English are of greater value, because they are read and explained by the school child—the messenger of education for most of the households.

The coöperation of the principals, teachers, and of the pupils is essential to success. Individual advice to pupils and mothers, practical lessons, and drills in personal hygiene, the use of charts in order to ascertain the status of and to inspire the thought of cleanliness in the pupils of the class, have an effect which is most difficult to overestimate.

In schools situated in the poorer sections of the city, where home conditions of the pupils are the same, and where both boys and girls attend, the percentage of pediculosis capitis in those schools wherein cooperation is good is less than in those wherein the coöperation is poor.

In the schools of the better sections of the city where boys and girls attend, the percentage of pediculosis capitis is far less than in the poorer sections, irrespective of the coöperation of the school authorities, because of improved home surroundings and better financial circumstances. School cooperation here is almost an inconsequential factor.

The percentage of pediculosis capitis in schools harboring boys only is less than in those harboring girls only.

Better facilities should be provided at the schools for a separation of the clothing and head-gear of the pupils, especially that of the girls. Separate lockers, hooks, bags, or

other containers should be installed, at least for children known to be infected.

Prevention of the condition is easier than its cure. Education will accomplish what drugs have failed to do.

The dangers of general infection, of loss of hair, of disease of the scalp, of infected glands with resulting scars and deformity, of predisposition to tuberculous glands—in a word, all the dangers of the condition—must be brought home to the parents in a quiet and confiding, yet impressive and firm way.

Pediculosis capitis is very infrequent among the colored schoolchildren of New York City. It occurs with greater frequency among those with soft straight hair than in those with the kinky variety, and among those children born of white mothers or light-colored negroes. This infrequency is due in large measure to the constant combing to which this race subjects the hair in order to straighten the kinks.

The prompt cure of the condition is accomplished as follows: Kerosene and sweet oil, each a half-pint; mix by shaking well, soak the hair and keep wrapped in a large bath towel for at least eight hours. Then shampoo for ten minutes with a teaspoonful of sodium carbonate in two quarts of warm water, using Castile soap. Thoroughly wash the soap from the hair with clear warm water; dry carefully. Repeat in one week.

ACIDOSIS.

EUSTIS (*New Orleans Medical and Surgical Journal,* September, 1913) observes that there is not a condition of true acidosis, but rather one of decreased alkalinity of the blood. That the presence of acetone and diacetic acid in large amounts in the urine may have grave prognostic significance there is no doubt. Their presence in large amounts, especially in children, should be interpreted only as a guide to rational therapy. It has for many years been known that if the glycogen of the liver is exhausted the body draws upon its fats to furnish the necessary energy for tissue changes, but inasmuch as the liver is unable to completely oxidize the fat, we have the formation of beta-oxybutyric acid, diacetic acid, and acetone. This is evidently what takes place in starvation and also when carbohydrates are rapidly withdrawn from the dietary of diabetics. In those cases in which this is the source of the acetone, it can be considered of endogenous origin. Ingested fat, especially butter, will act likewise, hence the clinical importance of regulating the intake of butter, the acetone in this instance being of exogenous origin. Undoubtedly the body proteid is also called upon to furnish fuel in starvation, as it has been shown by Mendel that carbohydrates fed to a starving dog will diminish the nitrogen in the urine, the latter being an index of the amount of tissue proteid burned up.

When we consider the complexity of the proteid molecule and the many different substances formed in its transformation to urea, it is not surprising that the intermediate products are only just now being isolated and that their physiological action in many instances is as yet unknown. Proteid in the alimentary canal is split up into albumoses, peptones, amino-acids represented by leucin, tyrosin, arginin, histidin, etc., into xanthine, guanin, and other hexone bases, while an alkaloid (toxin) is formed from the amino-acids by the action of the putrefactive bacteria of the colon. Each of these alkaloids or amines has its own physiological action in the general circulation, but it is broken up and rendered inert by the normal liver cells.

Acetone is best tested for by the Le Nobel test, which consists of acidifying 10 Cc. of urine with acetic acid, adding about 1 Cc. of freshly prepared sodium nitroprusside solution, and floating on the top of this mixture stronger ammonia water. At the junction of the two liquids a deep purple ring will appear in the presence of acetone, the intensity of color and rapidity with which it appears varying with the strength of acetone present.

Lately, Harding and Ruttan, in the last issue of the Biochemical Bulletin, have

shown that the Le Nobel test is a positive one not only for acetone, but also for diacetic acid, detecting this latter acid in urine 1:30,000 parts. However, the ferric chloride test for diacetic acid is so simple that it is universally employed, and consists in adding a few drops of an aqueous solution of ferric chloride to the urine. A positive test for diacetic acid is indicated by the appearance of a Bordeaux red color. It must be borne in mind that in patients taking salicylates a similar color will be obtained due to the presence of salicyluric acid, when the urine should be acidified, extracted with ether, and the test applied to the extract. The Le Nobel test obviates the extraction with ether, and is negative to salicyluric acid. The presence of beta-oxybutyric acid can be satisfactorily demonstrated by boiling the urine with hydrogen peroxide and applying the Le Nobel test for the latter acid. Practically we seldom if ever find beta-oxybutyric acid without diacetic acid, so that the former is tested for only when we wish to ascertain the total quantity of acetone bodies in the twenty-four-hour urine.

The author reports in some detail clinical types of acidosis. The first few are termed exogenous. He cites the case of a widow fifty-two years old, very fat, comatose, with flushed face, equally dilated pupils; full, bounding pulse and a strong odor of acetone (sweetish) upon the breath; slow, very full respiration which seemed to be at times Cheyne-Stokes in type. Her attack had been preceded by headache, nausea, and vertigo. The urine showed a deep-red color, a specific gravity of 1042; no albumin, casts, or sugar, but loaded with diacetic acid and indican. The patient was given two quarts of physiological saline solution by hypodermoclysis, a high soapsuds enema with turpentine was administered, and five grains each of calomel and phenolphthalein placed on the tongue and washed down with small quantities of water. She was then placed in a hot pack and sweated profusely. On return of consciousness two hours later she drank water eagerly; this was alternated with grape juice and citrate of magnesia, together with thirty grains of citrate of soda in syrup of citric acid every three hours.

As to the endogenous type, there is quoted a case of a luetic and emaciated adult who had been vomiting for six months, because of a small infiltrated and non-motile stomach in which there was no hydrochloric acid secreted. Diacetic acid was present in his urine. The administration of fruit juice and sugar in the form of peppermint candy and fruit tablets caused disappearance of the acetone in twenty-four hours. Mercury combined with gastroenterostomy cured this patient. This case illustrates an acidosis due to carbohydrate starvation and an effort upon the part of nature to supply fuel from its own fat and proteid material, or endogenous in type. This is often seen in inoperable carcinoma of the stomach, in stenosis of the esophagus, tubercular laryngitis, and other cases of protracted inanition. It is caused by dextrose starvation, and overcome if sufficient dextrose be given in the nourishment either by mouth or rectum. The author summarizes his paper as follows:

Acidosis should be regarded as either endogenous or exogenous, the absorption of intestinal alkaloids from the putrefaction of proteid material playing an important part in the causation of the latter type.

Acetone, diacetic acid, and beta-oxybutyric acid are only partly responsible for the symptoms of acidosis; parahydroxyphenylacetic acid and other organic acids probably also exerting their influence.

Determination of the ammonia coefficient of the urine is necessary to ascertain an accurate knowledge of the degree of acidosis.

There is a distinct acidosis in adults due to faulty liver function and absorption of intestinal poisons, which can develop coma and prove fatal, but in which there is no diabetes or uremia present.

Treatment of these conditions should be based upon a knowledge of the physiology

of nutrition and upon a thorough study of the individual case.

As a general rule the indications in treatment should be (*a*) neutralization of the acids present, (*b*) free catharsis, (*c*) abstinence from proteid and fats, (*d*) abundant carbohydrates and water.

CHETWOOD OPERATION FOR RETENTION OF URINE.

KEYES (*New York Medical Journal*, Oct. 4, 1913) alluding to prostatic retention due to relatively small fibrous hypertrophy of the prostate, reports his results with the Chetwood operation, which causes less shock than any form of prostatotomy. It may be performed under local anesthesia in two stages, taking but five to ten minutes. The hemorrhage is insignificant; the convalescence less stormy than that of prostatectomy. The method consists of perineal section and removal of the obstruction at the vesical neck. It may be done either by a special burning instrument or by section. Keyes performed 57 Chetwood operations with two deaths, both due to sepsis—one on the thirteenth day and one at the end of the fourth week. A third patient was operated upon for complete prostatic retention. He left the hospital in three weeks, healed, emptying his bladder, and in satisfactory general condition. Three weeks after this he died, his death being apparently due to chronic colitis. In eliminating from the statistics one case of tuberculosis, four cases of tabes, and three of carcinoma, the patients surviving operation and whose ultimate results at present do not concern us, incomplete relief was afforded to seven patients.

Among the fifty-seven patients operated upon, twenty-seven have been followed for a year or more (omitting cases of carcinoma, tabes, and tuberculosis). Seventeen, or sixty-three per cent, of these patients were cured, and the cures verified for nine years in one case; seven years in three cases; six years in one case; five years in one case; four years in two cases; three years in four cases; two years in one case; and one year in three cases. Three patients have grave incontinence of urine—two incomplete and one complete. Seven patients were incompletely relieved, and of these two went as long as five years before their symptoms again gravely inconvenienced them.

One whose most important lesion at the time of operation was a pyonephrosis, was left with incontinence of urine and a perineal fistula up to the time of his death from intercurrent disease, two years later.

Keyes feels that the average result is far better than he could have obtained by any other operation. A number of these cases were desperate risks, and most of them represented that class of prostate that is too small to be satisfactorily dealt with by prostatectomy.

CONGENITAL CYSTIC KIDNEY.

PETERSON (*Physician and Surgeon*, August, 1913) records a case of this kind and notes that the condition has oftenest been observed in the middle decade of life. He accepts the explanation that the condition exists from birth, but only becomes manifest later. There is a stage of progressive enlargement of one or both kidneys without subjective symptoms, which may last for many years. A stage of subjective symptoms, the enlargement being discovered by accident; this stage may last from a few months to many years. A stage of subjective symptoms and objective signs, which may last from a few months to six or eight years, or even longer; the signs and symptoms are dependent on the size and weight of the tumors. The stage of decreasing elimination of urine, lasting from a few weeks to several months.

Males and females are affected in about equal numbers. The disease usually terminates fatally in the fourth, fifth, or sixth decade. Renal enlargement is rarely discovered before adolescence, and when it develops in infancy the child hardly ever lives until the tenth year. Hematuria is not an

infrequent symptom. Concerning treatment the author summarizes his paper as follows:

If there be sufficient healthy tissue between the cysts to perform the normal renal functions the disease may never attract attention and the patient may live a normal life and die of disease independent of the kidneys.

Under the same conditions as to renal tissue, while the renal excretion is normal the cysts may cause pain and discomfort from their size and weight without dangerous symptoms for years. Mobility of the kidney with its accompanying trouble may result from this enlargement.

The growth and enlargement of the cysts may so strangulate and compress the normal kidney tissue between them as to throw it out of commission, so that stasis and uremia may result.

The normal tissue between the cysts may become affected by the various forms of nephritis, just as the healthy kidney may, and this nephritis may be fatal in itself or by reason of the cardiac and arterial changes which accompany it.

These same cardiac and renal changes may and do accompany the compression of the intervening tissue by the cysts, and are not an infrequent cause of death in these cases.

The surgical aspects of the disease relate to the pain and discomfort due to the size of the tumors or the mobility resulting from them, and in operating for these conditions it is all-important to remember the pathology of the disease, and more especially the fact that it is bilateral in ninety-eight per cent of the cases. A cystic kidney, while causing pain and disability by its enlargement, may still be performing so large a part in urinary excretion that its removal would be dangerous to life from renal insufficiency.

It, therefore, becomes important if possible to take some means to diminish the size of the offending organ and anchor it in place without interfering with its secreting functions. Such a procedure, which will be vastly safer than nephrectomy, consists in free incision and puncture of the larger cysts, thus diminishing notably the size of the kidney, and suturing of the organ in position. If for any reason a nephrectomy seems desirable it should not be performed unless an exploratory incision or ureteral catheterization has shown that the other kidney is healthy.

SEMINAL VESICULITIS.

PICKER (*Urologic and Cutaneous Review,* October, 1913), having examined about 150 seminal vesicles by filling them through the vas deferens with Beck's bismuth paste to the maximum capacity and then having dissected them, finds a great diversity in anatomical structure. There are specimens of simple straight tubes; thick twisted tubes with or without diverticula; thin twisted tubes with or without diverticula; main-tube straight or twisted, with large grape-like diverticula; short main-tube with large irregular ramified branches.

The pathogenesis of recurrent epididymitis may be clearly explained by the anatomical structure of the ampullæ. There is to be noticed in these cases on rectal palpation a marked sensitiveness more to the medial side of the infiltration involving the seminal vesicle. The seminal vesicle possesses among the glandular adnexa of the male urethra by far the most extensive secreting surface, in combination however with the worst drainage conditions. This tube-system stands in the center point of bacterial infectious diseases of the lower urinary passage.

From the author's clinical and anatomical studies it is clear that the symptoms of cystitis and vesical pyuria, with fever, are due to spermatocystitis if we can exclude pyelitis and prostatitis.

Epididymitis, if arising spontaneously, or following an injury, gives strict proof of the diseased condition of the ampulla of the seminal vesicle.

Metastatic symptoms, whether they be of rheumatic and arthritic or of pure septic

character accompanying an infectious disease of the lower part of the urinary tract, have in the majority of cases their origin in the infected but clinically latent state of the seminal vesicle. There a great part is also played by secondary infections which have established themselves on the soil of the changes produced by a typical acute gonorrheal infection long passed away.

In the rational therapy of infectious diseases of the lower part of the urinary tract special attention must be paid to the treatment of the adnexa and to the relieving of the patients from their complaints arising from the diseased state of the draining mucous surfaces. The former is done by the evacuation of the glandular adnexa, the latter by cleansing the urinary passage by means of mild antiseptic treatment.

The author concludes that in obstinate cases simple drainage is inefficient, and the only method of procedure is by complete vesiculectomy.

AUTOTHERAPY IN SURGERY.

DUNCAN (*American Journal of Surgery*, October, 1913) stimulated thereto by observing the dog's therapeutic application of the moist tongue to his wounds and healing results therefrom, has conducted a series of ruminations and clinical observations which led him to believe that a patient may abort infection by simply chewing his own bloody dressings twice daily. This he announces as a fact which in certain rare instances or conditions may be the means of saving human life. As this method does not largely appeal to the majority of patients he has adopted certain autoseptic rules, which are as follows:

If the exudate or a dilution of the exudate from any fresh wound is filtered through a Berkefeld filter and the filtrate is injected hypodermically at proper intervals, purulent infection will tend to be aborted.

A corollary to this general rule, that is often more convenient in the application of this principle, may be stated as follows:

If the discharge from an extraordinary or extrapulmonary fresh wound (the most common class of wounds with which we have to deal) is placed in the mouth at proper intervals, purulent infection will tend to be aborted.

In test cases the writer has practically thrown aseptic and antiseptic technique to the winds, and he has never had an apparent infection follow this treatment. Wounds of the stomach and lungs must be treated by following these rules. Compound fractures of the legs, arms, skull, etc., may be successfully treated by either of the above methods with equally good results. It is a question as to how far down in the alimentary track a wound may be located to be treated successfully by following the treatment outlined. It appears that wounds of the ileum and the large intestine may be treated successfully in this way.

In closed wounds and in some punctured wounds, where the exudate does not come to the surface, and therefore cannot be obtained, this application of autotherapy is not practicable. In closed wounds a small silver wire inserted for three or four days will tend to lead the exudate to the surface, without leaving a large opening. This often appears to be all that is necessary to allow the exudate to come to the surface. When we are able to obtain the infecting microörganisms in the exudate early, and use them autotherapeutically, there is no necessity for a wound ever to become purulent. It is not necessary to use the filter in the autoseptic treatment of wounds except in those comparatively rare injuries where a wound is received in a locality that is connected with the alimentary canal, or respiratory system. Treating wounds in any other part of the body the physician may employ the exudate direct by the mouth as a therapeutic agent. Administration of a watery dilution of the wound discharge may be assigned to the night nurse, to be given after the patients have retired. A little cocoa added, just previous to its administration, will disguise any floating particles of blood.

It is directed that the wound be dressed as soon as possible and daily thereafter. At each dressing all the oozing from the wound is caught, using the blood-stained gauze immediately over the wound and the drain, if there is one. Only enough water is added to bring it to half an ounce of fluid. The gauze and water are placed in a bottle and well shaken. It is then allowed to stand for about twelve hours, at the end of which time it is filtered through a Berkefeld filter, and twenty minims of the filtrate are injected hypodermically in the loose cellular tissues over the biceps muscle. This treatment is repeated daily until the danger of infection has passed.

THE USE OF THE X-RAY IN THE DIAGNOSIS OF DISEASES OF THE CHEST AND ABDOMEN.

CLENDENING (*New York Medical Journal,* Oct. 11, 1913) says that if we exclude the cases of constipation due to adhesions and bands, these conditions sometimes cause constipation and sometimes do not. There remain for study the cases of simple chronic constipation. The rationale of the use of the *x*-ray in the diagnosis of constipation must readily be evident to all. If in constipation there is a stasis of food in some portion of the intestine, there must be some advantage in knowing where the stasis is. To determine this we have been able to construct a sort of time-table for a bismuth meal in the normal intestinal canal. We owe it to Hertz, of Guy's Hospital. A bismuth meal should be almost out of the stomach, except for a small residue, and in the cecum in four and one-half hours; it should pass the splenic flexure in from seven to twenty-four hours; at the end of from twenty-eight to thirty-two hours every trace of a bismuth meal should be in the pelvic colon, where it stays until defecation occurs.

The average normal anatomy of the large intestine in the upright position is, as is the normal anatomy of the stomach, somewhat different from our ordinary conception. The hepatic flexure is usually a little above the crest of the ilium. The splenix flexure is in every case the fixed point of the large intestine and practically always the highest point. It is fixed just under the margin of the left ribs. From the hepatic flexure the transverse colon sweeps across the abdomen, usually sagging below the umbilicus (cases of the transverse colon above the umbilicus in the erect position are so uncommon that they always cause comment in a Roentgen laboratory), and rising sharply up to the splenic flexure.

The author has studied eighteen cases of chronic constipation with the fluoroscope. In none of them was there ever any retardment in the small intestine. He knows of no authentic case on record of chronic constipation in which any stasis was present in the small intestine. The cases of duodenal dilatation described by Jordan he has seldom seen. He has twice seen some obstruction in the terminal portion of the ileum (Lane's kink), but in neither case were the symptoms analogous to chronic appendicitis. In most cases of constipation there is a stasis at some definite place in the large intestine. In about forty per cent of the cases the stasis was in the cecum and ascending colon. The meal stays here from forty-eight to ninety hours after ingestion; in one case it remained five days. They have been described as cases of greedy colon.

In a very small number of cases there was some obstruction in the transverse colon just before the splenic flexure was reached. Against all of one's previous conceptions of probabilities, the transverse colon seems freer from stasis than any portion of the large intestine except the descending colon. By all odds, however, the greatest number of cases show the stasis in the lower part of the sigmoid colon. The colon here dilates to enormous size, and food residue stays here for days and sometimes weeks. This is the condition described by Hertz and named by him dyschezia. The rectal mucosa loses in the course of time all sensitiveness to the presence of feces; through

disuse the call to defecation no longer reaches the higher centers and the rectal and lower colonic musculature loses tone, and a pouch is formed.

These studies are of use only to point the way to treatment. In the first place it is worth while to consider for a moment the procedure of Sir Arbuthnot Lane. It will be noticed that the description given above of the normal large intestine in the erect position is not greatly dissimilar to his original descriptions of the anatomy of chronic intestinal stasis: its mere presence is no indication for operative procedure. The important thing, however, in considering the procedure of iliosigmoidostomy is that in a great majority of all cases of constipation the constipation is in the terminal part of the sigmoid colon. The operation of iliosigmoidostomy in these cases simply shuts off a portion of large intestine in which no constipation has ever existed, which the bismuth meal traverses in normal time and throws the intestinal contents into the very portion of bowel which is the seat of the stasis. In a recent paper Mayo states that in a number of cases of iliosigmoidostomy done for chronic constipation, the constipation was not cured. Is it not possible that some of these were cases of dyschezia? Bevan, in the shortest and sanest paper on the subject, warns against performing operations simply for chronic constipation alone, and strongly advises that in every case in which operation is performed definite evidence of adhesions and obstructive symptoms be produced; he feels that, for such a serious surgical operation as removal of the colon, definite evidence of organic obstruction should be demanded.

The treatment of the two main types of constipation, the cecal and the sigmoid, is relatively satisfactory. In the cecal type we have been using agar-agar, one or two or three spoonfuls of the powder three times a day, and modifying the diet in the classical manner.

In dyschezia the main attack has been centered on increasing the sensitiveness of the rectal mucosa, so that the call to stool will be obeyed. Cathartics are interdicted except that an occasional one, every two weeks or so, may serve a purpose. It is of no use to modify the diet of these patients. The main reliance has been placed on enemas, given at first twice daily, then once daily in the evening, and then at more infrequent intervals. Thus keeping the rectum empty we increase its sensitiveness. The education of the habit of going to stool at a regular time each day is equally important.

IODINE AS AN AID TO ASEPTIC VACCINATION.

WATERS (*Indian Medical Gazette*, September, 1913) describes the method of vaccination in India. The ordinary operation of vaccination, as actually performed, proceeds in this fashion: The child is brought to the vaccinator, who is armed with lancet, tube of lymph, and so on. The child's arm is rubbed with the hand and then vaccination performed in the usual way. In spite of this violation of every aseptic rule, the results, as a whole, are wonderfully good, and though bad arms do occur, it is impossible to say whether they are due to sepsis inoculated at the time of vaccination, or to the various domestic remedies applied to the arm shortly afterward—probably the latter.

The arm is painted with tincture of iodine, and at the same time the vaccinator, as he holds the arm, paints his left thumb. The lancet blade is dipped in the tincture and allowed to dry. A sufficient quantity of lymph is extracted from the tube with the now sterile knife and either placed directly on the iodined arm or on the left thumb-nail. Vaccination is then performed through the iodined skin and no dressing is applied.

He has used this method in some 300 cases with many failures, but without sore arms. A modification of it, to wit, the painting of the vaccinated area with iodine some twenty-four hours after vaccination, this being repeated once daily, has been

clearly shown by an experience of several hundred thousand cases to be a most efficient preventive of the bad sores of mixed infection.

OPERATIVE TREATMENT OF EPILEPSY.

RAUCH (*Beiträge zur Klinischen Chirurgie,* Bd. 85, Heft 3, 1913) reports operation on 22 cases of epilepsy. Of these, 13 were generalized non-traumatic epilepsy, five were non-traumatic Jacksonian epilepsy, and four were generalized epilepsy following trauma. In nine cases of generalized non-traumatic epilepsy the cervical sympathetic nerve was resected, with the result that one case was cured and the remaining cases were not benefited. In 13 cases operation was performed upon the skull; four of these were generalized non-traumatic epilepsy, five were non-traumatic Jacksonian epilepsy, and four were generalized traumatic epilepsy. Of these, one case of non-traumatic epilepsy was cured; two cases of generalized non-traumatic epilepsy, one of non-traumatic Jacksonian epilepsy, and two of generalized traumatic epilepsy were improved. Although the operative results were not brilliant, operative treatment of epilepsy cannot be looked upon as entirely without promise, for in certain cases in which internal therapy has proven a complete failure, cure or improvement can be obtained through operative measures.

THREE SUCCESSFUL OPERATIONS FOR PERFORATIVE TYPHOID ULCER.

MITCHELL (*British Medical Journal,* Sept. 20, 1913) says the cases are too few in number to justify any authoritative inferences. He thinks, however, he may fairly emphasize the following points:

1. The modern system of treating typhoid in well-equipped hospitals, where such a complication as perforation is likely to be recognized at the earliest possible moment, and immediately arrangements made for operation, is eminently favorable to surgical success.

2. It is very desirable to operate as rapidly as possible, and to avoid all unnecessary handling and exposure of intestine. These patients are totally unable to bear much manipulation.

3. The quickest way to find the perforation is to go straight for the ileocecal valve and trace the ileum upward. It will rarely be necessary to handle more than 2 to 3 feet of bowel.

4. All sutures should be of catgut, as silk or linen is almost certain to become infected and give rise to troublesome sinus. The catgut the author uses is prepared by boiling in absolute alcohol for thirty minutes, and stored in tincture of iodine one part, proof spirit ten parts.

5. These patients bear the Fowler position and continuous rectal saline quite well.

6. Coliuria being a very likely complication, it appears wise to put these patients at once on alkaline treatment. Whether as a result of this procedure or not, his last two cases showed no sign of this troublesome ailment.

THE FREE TRANSPLANTATION OF FASCIÆ.

KORNEW (*Beiträge zur Klinischen Chirurgie,* Bd. 85, Heft 1) reports in detail experiments upon 50 animals and operative experience in 18 patients involving the free transplantation of fasciæ. The first series of 33 animals were operated upon for defects in the tendo Achillis by transplanting a piece of the fascia lata femoris; the second series of 12 animals were operated upon for defects of the breast wall, and the third series of five animals for the closure of defects in the abdominal wall. Of the first series of 30 animals, rabbits, operated upon for defects in the tendo Achillis, in three cases the results were failures as the ends of the tendons sloughed away; in five cases there was some reaction and healing was not kind, but the functional results were good. In all the other cases

the healing was prompt and the functional results unusually good. In three dogs treated in the same manner the results were all good.

In the second series of 12 animals, dogs, a portion of the chest wall, including all the structures and comprising parts of two to four ribs, was resected, and the gap thus made was filled by pieces of the fascia lata of the thigh. Of these 12 cases, seven were entirely successful; two died of purulent pleurisy; three died during the operation because of too large a resection of the chest wall. The third series of five dogs operated upon for defects in the abdominal wall showed an excellent result in one case, a moderately good result in one case, and failures in three cases.

The clinical material consisted of 18 cases, 10 of which were operated upon on account of inguinal hernia; one each for closure of the inner ring in femoral hernia; for closure of a defect in the chest wall with hernia of the lung; for closure of a wound in the chest caused by a penetrating wound; for defect of the sphincter ani instead of using a Thiersch metal ring; for fixation of the testicle in failure of descent; and for mobilization of the lower jaw in ankylosis of the joint. Of the 10 cases of inguinal hernia all were successful but one; the results were good in all the other cases.

The following conclusions are justified: Autoplastic flaps of fascia heal in without regard to size. In operations upon the thorax pieces of fascia can be used for repair of muscle and bone defects as well as for defects in the pleura. In old and recurrent hernia the hernial opening is strengthened by means of fascia placed along the suture line better than in any other way. In certain cases the fascia plastic is the only method of repairing a muscle defect in the abdominal wall; for instance, in femoral hernia it is the method of choice in closing the crural canal. It is of great value as a substitute for the metal ring of Schleich in prolapsus ani. The fixation of the testicle in cryptorchism by means of a flap of fascia gives very good results.

REVIEWS.

DISEASES AND DEFORMITIES OF THE FOOT. By John Joseph Nutt, B.L., M.D. Illustrated. E. B. Treat & Company, New York, 1913.

The purpose of this book is, according to the author's preface, a condensation and clarification of the specialist's knowledge in such wise that it may be rendered both accessible and applicable for the ordinary practicing physician. In the attainment of this purpose there is a fair measure of success. Anatomy, physiology, and examination are discussed in the first three chapters. Thereafter Shaffer's foot, weak foot, flat-foot, club-foot, Pott's paraplegia, cerebral paralysis, infantile paralysis, tuberculosis, and gonorrheal diseases and other ailments, the work ending with a final chapter upon Foot Apparel.

Throughout discriminating judgment has been exercised in the selection of material, the book being less than 300 pages in length. The teaching is that accepted as most advanced at the present day. This work may be warmly commended to all practitioners of medicine.

MINOR AND OPERATIVE SURGERY, INCLUDING BANDAGING. By Henry R. Wharton, M.D. Lea & Febiger, Philadelphia and New York, 1913.

The appearance of the eighth edition of Wharton's Surgery is sufficient evidence of the fact that the author has given to the profession a book which has been found continuously serviceable. The illustrations on bandaging are particularly to be commended. It is interesting to note that the author advises exposure of the vein for the administering of intravenous saline solution. This is usually done by needling. There has been incorporated in the text a

brief description of salvarsan. The cystoscope and the urethroscope are mentioned, and Bier's treatment is covered with admirable brevity and directness. Under Anesthetics there is perhaps a little to be added. Many points of technique are described in satisfactory detail. There is a part devoted to asepsis and antisepsis, beginning with surgical bacteriology and running through the various materials used in dressing. Sections are devoted to Fractures and Dislocations, with the various dressings appropriate in individual instances; to Ligations, Amputations, and Anatomical Relations. Among other surgical procedures are included Operations on the Chest, Abdomen, Stomach, and Bones and Joints.

This book is an old friend more welcome than ever because of its modern garb.

PRINCIPLES OF SURGERY. By W. A. Bryan, A.M., M.D. Illustrated. W. B. Saunders Company, Philadelphia and London, 1913.

This book, dedicated "To the men I have taught," is intended by its author "to put the fundamental facts of Surgery before the student in a simple and logical way and thereby to lay a foundation upon which an intelligent understanding of the immense details of practical work may be built."

The theory of the work is much in accordance with that found in other similar books. Its peculiar merits are based on a certain lucidity of expression, a logical sequence of exposition, and a touch of a broader philosophy than one is accustomed to find in text-books. Throughout there is a directness, simplicity, modernness, and thoroughness worthy of the highest praise.

PRACTICAL MEDICINE SERIES. Volume VII, Obstetrics. Edited by Joseph B. De Lee, M.D. With the Collaboration of Herbert M. Stowe, M.D. Series 1913. The Year Book Publishers, Chicago.

This volume covers the physiology, diagnosis, pathology, and toxemia of pregnancy; abortion; eclampsia; placenta prævia; and abrupta placenta.

Under labor are considered treatment, postpartum hemorrhage, and operative obstetrics. Under the puerperium, hygiene and pathology and puerperal sepsis. There is a final part devoted to the new-born.

Throughout the book is characterized by a direct brevity in abstracting, and in the main by a wise selection of papers which in their studies and conclusions are likely to be helpful to both the general practitioner and the specialist. There is no more ready and efficient way to keep in touch with the movement of the times than by careful reading of these books. Moreover they constitute a ready reference for those who desire more detailed knowledge.

CORRESPONDENCE.

LONDON LETTER.

BY J. CHARLTON BRISCOE, M.D.

The annual distribution of grants from King Edward's Hospital Fund for London, to the hospitals, sanatoria, and convalescent homes in connection with the metropolitan area, has just been announced. The amount received by the Fund, after the payment of expenses, during the past year has been over £150,000, and the Fund will thus be able to maintain the high level of distribution reached in 1911. Lord Rothschild, the honorary treasurer, announced that the Fund would benefit, probably to the extent of nearly half a million, from the will of Sir Julius Wernher, and he proposed that this large sum should be invested permanently, and not treated as an ordinary legacy, as the Fund could not look forward to a repetition of such large windfalls. The announcement was also made that the Fund has settled its difference with St. George's Hospital, which would receive a grant based on a consideration of the claims of the hos-

pital, in respect of work during the past year. It may be remembered that the difficulty arose owing to the financial relations between St. George's Hospital and its Medical School. Certain charges were made that the hospital was spending more upon scientific investigation of disease than other hospitals, and that the Medical School benefited unduly thereby. As the hospital authorities did not present their accounts in the required form, grants were forfeited during three successive years. The hospital has now rearranged the payments made by the hospital to the school in such a manner as to satisfy the requirements of the Fund, and will in consequence receive a grant of £3000. The largest individual grant is to the London Hospital, which receives £12,000, while capital grants amounting to £20,500 have been set aside for an amalgamation of the throat, nose, and ear hospitals. The chairman, the Duke of Teck, mentioned in the course of his speech that a suggestion had been made by his brother, Prince Alexander of Teck, that the Fund should purchase a supply of radium, which could be used by the various hospitals. The executive of the Fund had, however, been obliged to come to the conclusion that they had no legal powers to use their funds in the purchase of radium, however great the need might be for a larger supply of this valuable curative agent.

A special representative meeting of the British Medical Association was held in December, to decide if the annual subscriptions of members should be raised from 25/- to £2 2s. In the last ten years the Association has greatly increased its political activities, and the opposition to the Insurance Act entailed a great increase in expenditure. The Council stated in their report, placed before the meeting, that they saw no way of putting the finances of the Association on a sound basis unless they decided deliberately to cut down their work in safeguarding the interests of the profession. The Council also made a second proposal, that a special fund should be raised by means of a voluntary subscription of £4 4s. a year from 10,000 members. This money was to be spent on the development of the organization and in the protection of the medical profession. There has been a considerable amount of dissatisfaction with the Association's methods of carrying on political warfare, and it was feared that an increased subscription would cause many men to send in their resignations. Whether this will happen remains to be seen, as the representative meeting carried the first proposal by the necessary two-thirds majority. Although many forces are at work to undermine the position of the Association, it still retains its premier position in the profession, and it is likely to do so in the future, unless its many opponents can start a rival organization which will obtain greater support. The second proposal to form a special fund was postponed until the amount brought in by the additional subscriptions was ascertained.

A committee has been appointed by the Chief Secretary of Ireland to inquire into the housing of the working classes in Dublin, a subject which has been brought into much prominence lately by the prolonged strike and industrial unrest in that city. Sir John Moore, in his evidence before the committee, alluded to the serious condition of things which would arise if smallpox were introduced into that city, owing to the continuous decline in vaccination. He thought that all the diseases due to dirt and overcrowding ought to be notifiable, and he mentioned that the number of cases of typhus in the first nine months of the present year amounted to 70, whereas there had only been 12 cases in the whole of last year. The death-rate due to pneumonia, scarlatina, and diphtheria has also been very high, and the witness thought that an improvement in the wretched housing conditions would diminish these diseases, and would also have a great deal to do with allaying the present industrial discontent.

The Board of Agriculture is about to undertake some experiments in the treatment of swine fever, in the hope of coming to some reliable conclusion as to the effi-

ciency of the serum treatment. Attempts have been made to induce the department to sweep away all the area restrictions and rely only upon serum for the eradication of the disease, but unfavorable results have been produced in other countries by the adoption of these methods. The President of the Board of Agriculture has intimated that a great research institute of imperial dimensions, and financed out of the national funds, will probably be organized before long, where the causes and treatment of animal diseases can be investigated scientifically. The establishment of such an institute would have the effect of increasing the number of men highly trained in veterinary science, a very pressing need at present, and would also stimulate research in this important branch of comparative medicine.

The question of providing an adequate ambulance service for London has been under discussion for a considerable time. The Metropolitan Asylums Board prepared a scheme to be worked in conjunction with their present infectious ambulance service, using the existing ambulance stations for housing street accidents, but not allowing any interchange between the infectious and non-infectious services. The London County Council have, however, decided not to adopt this scheme submitted by the Board, but to prepare a new service to be maintained by themselves, and thus to do away with the dual control involved by the adoption of the scheme outlined by the Asylums Board. A subcommittee has been appointed to arrange the details of the new service.

The President of the Board of Education has announced that the government has decided that the recommendations of the Royal Commission as to the position and teaching of the London University should be carried out as far as possible, and an endeavor will be made to secure the reconstruction of the University on the lines laid down in the report. An important accompaniment to this reconstruction will be the establishment of central buildings and of a university quarter, so we may hope to see an end of the prolonged dispute as to the new site of the University. A Departmental Committee has already been appointed to make the arrangements necessary for legislation, and to endeavor to bring all parties together in an effort to obtain as much support as possible in the country. The government has no intention of abolishing the external degree, but will rather endeavor to strengthen it, as it recognizes that a University of London must differ from all other universities, as London itself is different from all other cities. It is the meeting place of professional men and women from all parts of the world, and as the center of a great Empire its University must be prepared to offer its best to all comers.